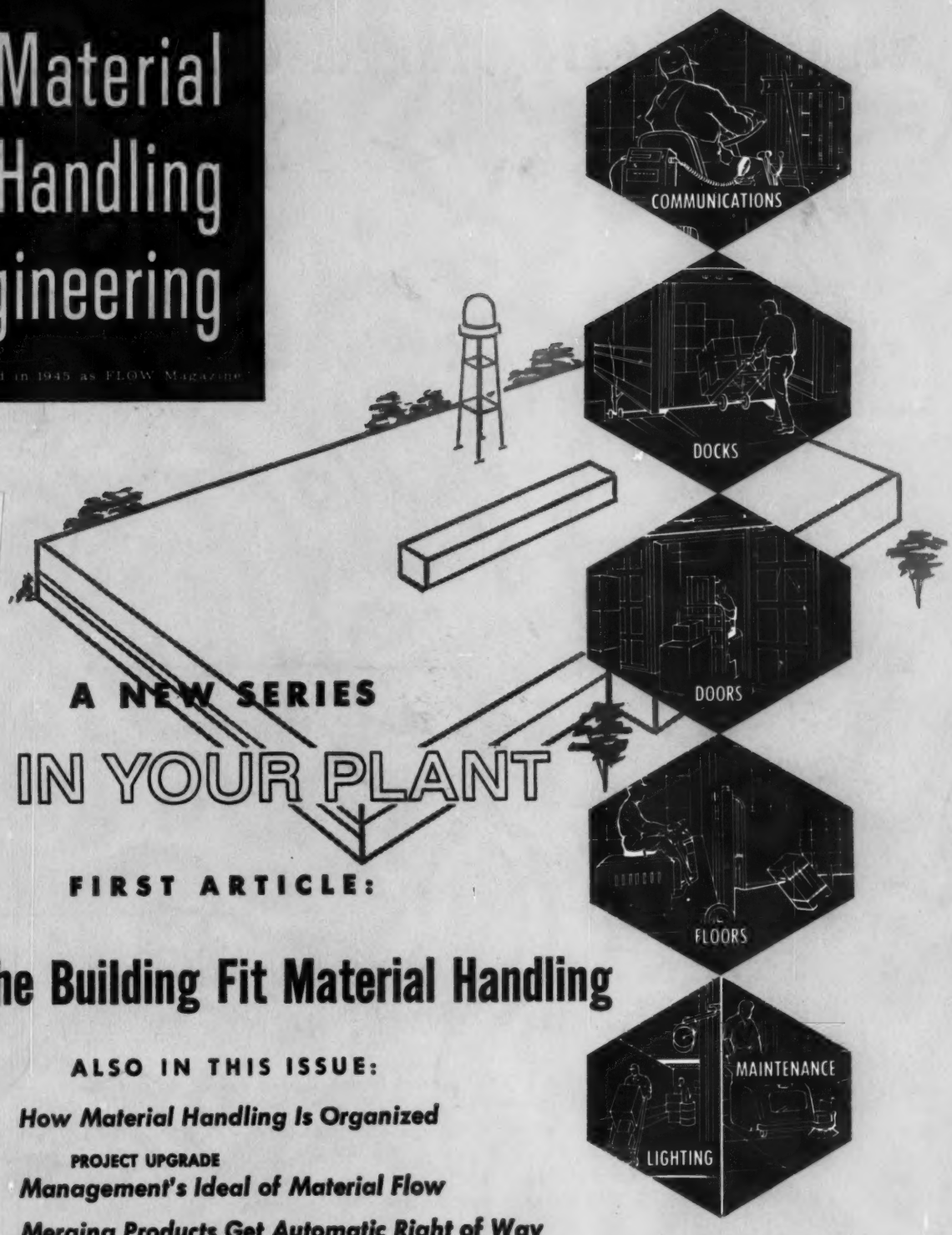
OCTOBER 1961

Material Handling Engineering

Established in 1945 as FLOW Magazine

STEVENS RICE
UNIVERSITY MICROFILMS
313 NORTH FIRST ST
ANN ARBOR MICH
FIZ



A NEW SERIES

IN YOUR PLANT

FIRST ARTICLE:

Make the Building Fit Material Handling

ALSO IN THIS ISSUE:

How Material Handling Is Organized

PROJECT UPGRADE

Management's Ideal of Material Flow

Merging Products Get Automatic Right of Way

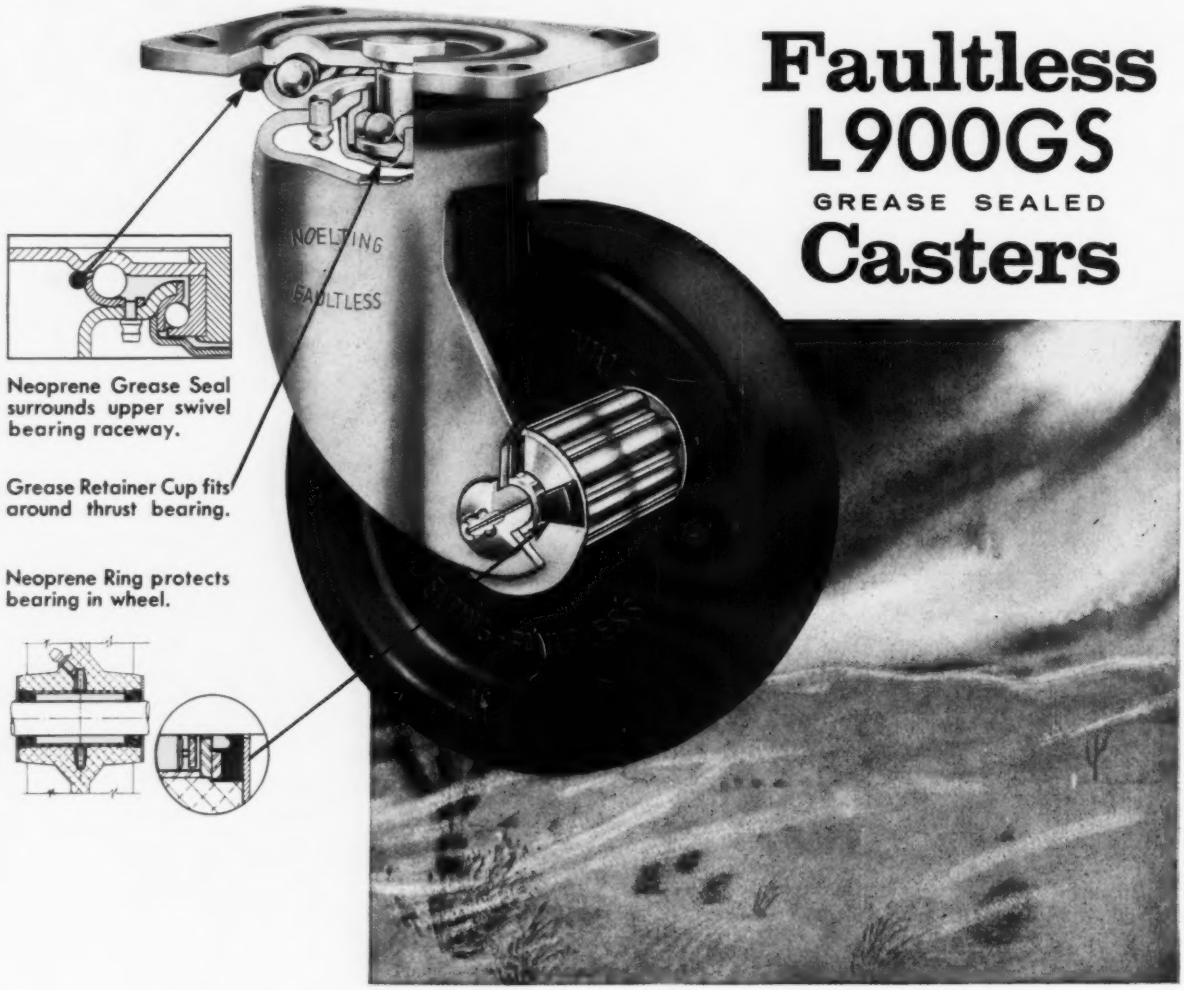
mhe

THE MAGAZINE OF MATERIAL FLOW MANAGEMENT

Everything Moves in Storage System 57
Automatic Bakery System 80

Where it's Gritty, Hot, or Corrosive, use

Faultless L900GS GREASE SEALED Casters


NOELTING
FAULTLESS
Neoprene Grease Seal surrounds upper swivel bearing raceway.
Grease Retainer Cup fits around thrust bearing.
Neoprene Ring protects bearing in wheel.

Grease Seals keep lubricant in . . . keep out dirt, dust, sand, steam, etc.

Faultless L900GS Grease Sealed Casters are designed to keep rolling, with minimum maintenance, in working areas where gritty particles, or harsh chemicals would damage ordinary casters. Neoprene Grease Seal and Grease Retaining Cup around Double Ball Bearing Swivel, plus Neoprene Ring around wheel bearing, give positive protection against materials that would clog caster movement, cause friction and wear. Companion L9700GS Rigid Grease Sealed Caster is available with matching specifications and sizes.

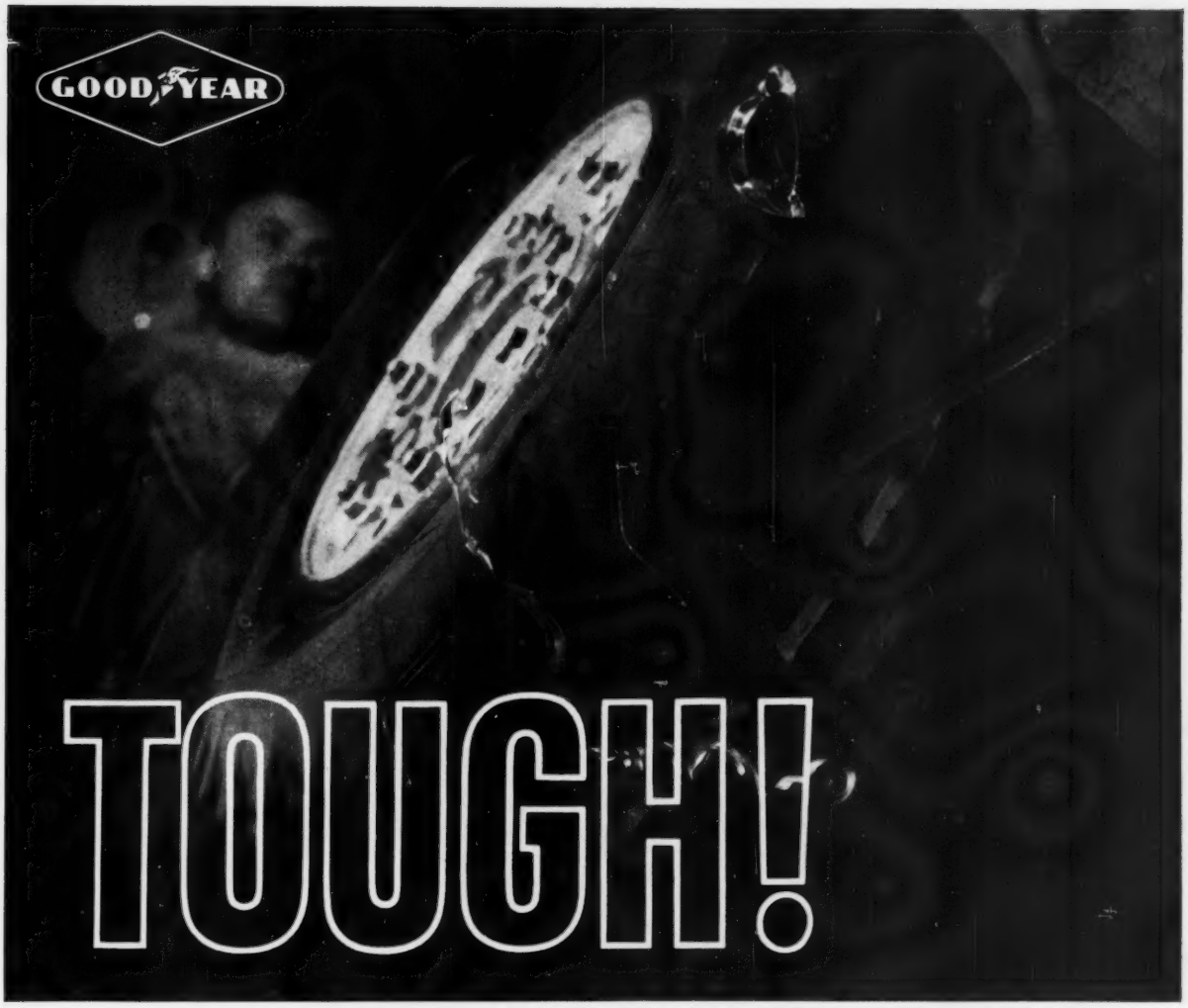
Your Faultless Industrial Distributor, or nearby Faultless Sales Engineer can supply you with detailed information on the L900GS, as well as the other casters in the complete, quality-tested Faultless Caster line. Also, your Faultless Distributor stocks casters at his warehouse for immediate shipment.

Faultless Caster Corporation Evansville 7, Indiana

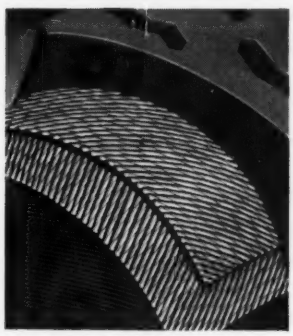
Branch Offices in principal cities; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario.

Circle 40 on Reader Service Card

NOELTING Faultless Casters



New STEEL GUARD makes tire-killers a dead issue



Secret sinews making STEEL GUARD virtually puncturepoof are these steel cable plies anchored deep in rubber.

Here's an action shot of tire costs going down! It shows Goodyear's great new STEEL GUARD pneumatic industrial tire shrugging off the kind of tire-killers that quickly knock out ordinary pneumatics, boost your tire replacement costs.

STEEL GUARDS blunt the tire destroyers' threats with a built-in puncture-barrier of heavy steel cables crisscrossed beneath the tread. Embedded solidly in the rubber just above the plies, this steel armor extends right up across the shoulders for greater protection.

Look at the STEEL GUARD lugs – thick and rugged, they form a tread that takes the most punishing blows and provides extra traction in slick going. Don't forget – STEEL GUARD is a pneumatic, which means a smooth ride for cargo and driver, coupled with standout stability and flotation. Get a longer run for your tire dollar – even in foundry and brickyard service–with new STEEL GUARD, the industrial pneumatic with built-in puncture-barrier. It's added proof that lots of good things come from Goodyear. Ask your Goodyear Dealer or write: Goodyear, Industrial Tire Sales, Akron 16, Ohio.

Buy and Specify STEEL GUARD Tires by

GOODYEAR

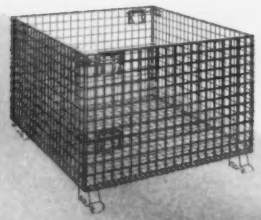
Steel Guard – T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

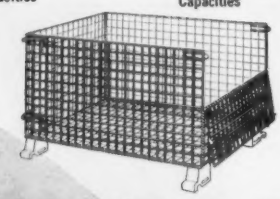
Circle 49 on Reader Service Card

WHEREVER YOU ARE YOU NEED···

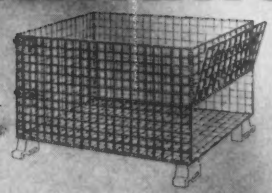
PALLETAINERS!



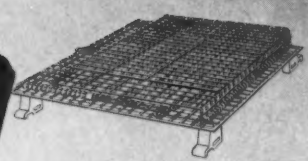
Hi-Lode
2,000—4,000—6,000 lb.
Capacities



Warehouse
3,000—4,000 lb.
Capacities



Bulk Lode
2,000—4,000—6,000 lb.
Capacities



All Palletainers fold down to save approximately 75% of return shipping or storage space.

Warehouse type Palletainers with gates offer complete content accessibility even when stacked. Stacking saves valuable floor space.

Delicate yarns in plastic covers in Textile Palletainers may be stored indefinitely—always visible, accessible, safe and clean. Snap-in liners are available.

Appliance manufacturers prefer Palletainers for fast, safe transportation of delicate or fragile products prior to final packaging operations.

Canneries and foodstuff processors are using Palletainers for storage, processing and shipment. Palletainers are ideal for cold-storage or fast freezing.

All manufacturers agree that Palletainers simplify warehousing, storage and inventory. Contents are always protected, clean, visible and ready for use.

Palletainers smooth out handling, loading and transport problems for die casting plants and foundries from coast to coast. Palletainers are practically indestructible.

Wherever you are . . . no matter what you manufacture, store or transport . . . you need Palletainers!

Palletainers carry loads up to 6,000 pounds with perfect safety. Form-welded steel legs provide 8-way entry for fork lift trucks and secure ceiling-high stacking. Full visibility permits speedy inventory in or out of storage—and their sturdy steel rod, welded mesh protects cargo perfectly.

USP Palletainers are available in a wide range of sizes, types and capacities to match each specific plant need. Why not survey your plant today and start your "savings program" the Palletainer way?

SPECIAL OFFER—Try these tested, proved-in-service containers on a 60-day memo billing basis. Your obligation is freight, only. Also—write, wire or 'phone today for additional Palletainer information. It's yours without obligation!

UNION STEEL PRODUCTS COMPANY

500 N. BERRIEN STREET
ALBION, MICHIGAN

Circle 123 on Reader Service Card

Palletainers are also manufactured under license by: Banner Metals, Inc., Compton (Los Angeles), California; and Cronsme, Ltd., Waterloo, Quebec, Canada.

reader's guide to

OCTOBER 1961

Material Handling Engineering

volume 16 number 10

Established in 1945 as FLOW Magazine

MAKE THE BUILDING FIT MATERIAL HANDLING **53**
First article in the new In Your Plant series.

EVERYTHING MOVES IN STORAGE SYSTEM **57**
The orderpicker rides and the shelves move in an unusual installation.

ESTABLISHING WORK STANDARDS **58**
Three approaches to a controversial aspect of material handling.

MERGING PRODUCTS GET AUTOMATIC RIGHT-OF-WAY **62**
Small paper products benefit from mechanization and automatic control.

MANAGEMENT'S IDEAL MANAGER OF MATERIAL FLOW **64**
Eighth article in Project Upgrade series looks at you through management's eyes.

HOW MATERIAL HANDLING IS ORGANIZED **71**
Engineering societies and trade associations can help you with your career.

RUN SYSTEM, SPOT TROUBLE FROM ONE POINT **78**
An automatic bulk handling system is the key to an efficient bakery.

DEPARTMENTS

6 ... News Roundup
20 ... Cost Cutting Ideas
40 ... Product News
84 ... Bulletins, Catalogs & Films
105 ... Calendar
114 ... Associations
116 ... Industry News
120 ... Classified
122 ... Advertisers' Index

BPA FRANCHISE CIRCULATION DISTILLED WRITING

copyright 1961 by The Industrial Publishing Corporation

IMPORTANT ANNOUNCEMENT

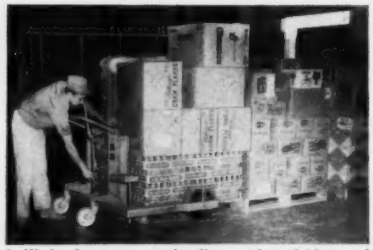
to Floor Truck Users

NOW...A 5-YEAR GUARANTEE ON

Nutting

TRUCKS AND TRAILERS

Every Nutting truck, trailer and dolly is now guaranteed in writing for five (5) full years. With this written guarantee you receive a detachable business reply card for registering it at our home office.



3 IN 1—Serves as a dragline, order picking and pallet truck. For warehousing and distribution operations.

Why This Exceptional Guarantee?

Our customers know that Nutting products are designed, engineered and manufactured to give the best in performance and durability . . . but we want to assure you, the prospective new customer—in the most convincing way we know—of the reliability of Nutting equipment. This guarantee is added proof that when you buy Nutting, *you buy the finest.*

Nutting gives you . . . a choice of over 1,000 standard models, quick delivery and, *a 5-year written guarantee!*

If you need trucks, trailers or dollies, discuss your requirements now with a Nutting representative. He can give you valuable help with your material handling problems, whether they involve manual and/or power applications.

For free literature use reader service card — or write direct.

Case and carton trucks for in-plant use and off truck delivery.

Pallet dollies. Tilt and non-tilt styles.

Strong, lightweight, all aluminum platform trucks—also wood and steel frame platform trucks—tilt or non-tilt styles.

Jacks and semi-live skids for transport and mobile storage.

Heavy duty 2 wheelers for cases, boxes and crates.

Nutting makes all types of trucks for use with sub floor and overhead conveyors.

NUTTING TRUCK AND CASTER COMPANY

104 West Division Street, Faribault, Minnesota

Service to Business and Industry Since 1891

Circle 94 on Reader Service Card

Material Handling Engineering

EDWIN M. JOSEPH ..... *publishing director*
CHARLES M. FALLON ..... *general manager*
BERNARD I. KNILL ..... *editor*
JACK E. ATZINGER ..... *associate editor*
RICHARD H. DIETZ ..... *associate editor*
JOHN F. SPENCER ..... *associate editor*
JAMES M. PUMMER ..... *associate editor & production manager*
BERT BENKENDORF ..... *art editor*
HENRY LEFER ..... *eastern editor*
SCHOLER BANGS ..... *western editor*
E. RALPH SIMS, JR. ..... *consulting engineering editor*
DAVID KINSLER ..... *distilled writing*
M. SELZMAN ..... *editorial asisstant*
M. N. BENEDETTO ..... *editorial assistant*
ALARIC MAUSSER ..... *art director*
N. G. KISER ..... *circulation director*
MICHAEL NASSIF ..... *franchise production*
LEW DAVIS ..... *franchise representative*
ROBERT GAUVIN ..... *manager, reader service department*

SALES OFFICES:

Cleveland 15, Ohio
812 Huron Road
SUperior 1-9620
RICHARD C. GROVE, *representative*

New York 17, New York
60 East 42nd Street, Room 836
MUrray Hill 7-3420
LEE HAAS, *manager*
JAMES ROBINS *representative*
ARTHUR JOYCE, *representative*

Chicago 11, Illinois
520 North Michigan Avenue, Suite 704
WHitehall 3-1655
CHARLES F. GEYER, *manager*
E. H. ST. JULES, *representative*
TOM MULLIN, *representative*
S. R. TRACY, *representative*

Los Angeles 57, California
672 South Lafayette Park Place
DUnkirk 7-5104
ALAN T. CAZIER, *manager*
LLOYD BROOKMEYER, *representative*

London, S. W. 1, England
36 Victoria Street, London, S.W.1, England
SUllivan 6072
JOHN A. LANKESTER, *manager*

SUBSCRIPTIONS in the United States and its possesions, $7 a year, $12 for 2 years; in Canada, $8.50 a year; in the United Kingdom, £3.5.0 a year, payable in sterling at our London office; other foreign, $10 a year. Single copies (when available): 1 to 10, 75¢ each; 11 to 25, 60¢ each; more than 25, 45¢ each. Canada: 75¢ each. Foreign: $1 each.

THE INDUSTRIAL PUBLISHING CORP.
812 Huron Road, Cleveland 15, Ohio
SUperior 1-9620

LESTER P. AURBACH ..... *president*
EDWIN M. JOSEPH ..... *executive vice president*
LEE HAAS ..... *vice president*
CHARLES F. GEYER ..... *vice president*
N. N. GOODMAN, JR. ..... *vice president*
PAUL ROLNICK ..... *vice president*
T. L. DEMPSEY ..... *asst. secretary treasurer*

AFFILIATED PUBLICATIONS: Hydraulics & Pneumatics, Welding Design & Fabrication, Modern Office Procedures, Occupational Hazards, The Refrigeration & Airconditioning Business, Precision Metal Molding, Handling & Shipping, and Power Transmission Design.

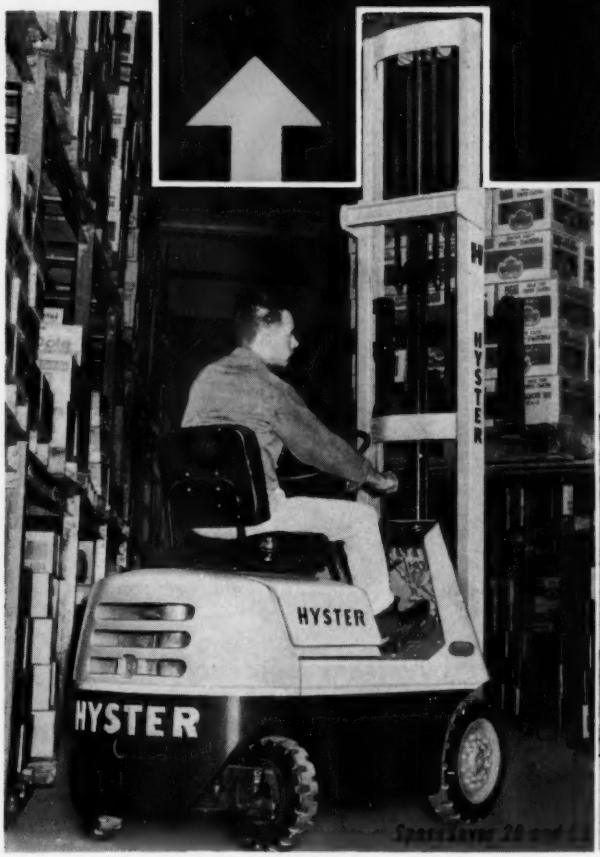
INDEXED by Engineering Index, Inc.

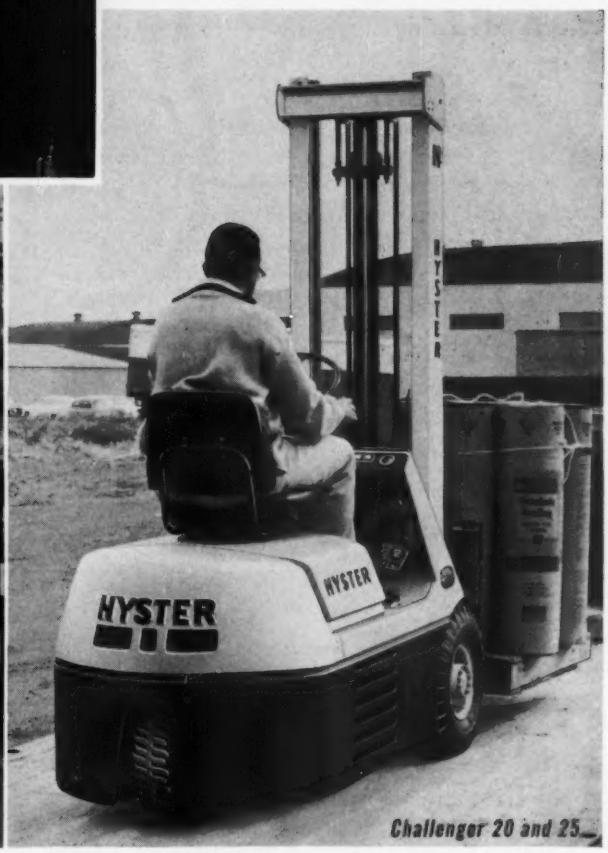
MICROFILMED copies of Material Handling Engineering are available from University Microfilms, 313 North First Street, Ann Arbor, Michigan.

PUBLISHED monthly and copyrighted 1961 by The Industrial Publishing Corp. Controlled circulation postage paid at St. Joseph, Mich. Printed in U.S.A.

Return form 3579 to 812 Huron Road, Cleveland 15, Ohio.

HYSTER





Challenger 20 and 25

SEE WHY THIS All-New 2,000-2,500 lb. combination LEADS THE PACK!

HYSTER® has it!

MONOTROL CONTROL—One-foot forward-reverse and acceleration for perfect control, safety, fatigue-free operation.

FAST LIFT SPEED—Beats anything near its weight class—105 fpm with 2,000 lb. load.

HIGHEST LIFT—Lowest overhead clearance with low-profile uprights!

TOP ACCESSIBILITY—Instant access to engine for daily maintenance and inspection—only a few seconds more to expose entire power train.

HUMAN ENGINEERED—Clean, functional design for best visibility, operator comfort. Compact for safe movement in the tightest spots.

Call your Hyster dealer for a demonstration.

INDUSTRIAL TRUCK DIVISION—Lift trucks and attachments, mobile cranes, straddle carriers
TRACTOR EQUIPMENT DIVISION—Construction and logging equipment; Heavy-duty trailers
INTERNATIONAL DIVISION—Overseas truck and tractor manufacturing, sales and service

Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. Australia • Brazil • England • France • The Netherlands • Scotland • Republic of South Africa

NEWEST TRUCKS—NO INVESTMENT CUSTOM LEASING PLAN CALL YOUR HYSTER DEALER

HYSTER COMPANY
INDUSTRIAL TRUCK DIVISION
P. O. Box 847 • Danville, Illinois

Circle 55 on Reader Service Card

NEWS ROUNDUP

Wider container standard sought

THE INTERNATIONAL CONTAINER BUREAU, meeting this month in Paris, is reconsidering maximum container sizes for Western Europe. Present maximum size permitted in universal interchange in Western Europe is 7 ft. 7 inches x 7 ft. 7 inches. Request for reconsideration was made by John R. Immer, permanent delegate to ICB for North America. He prepared documentation to support larger dimensions. The American Standards Association earlier this year approved van container standards with a cross section of 8 ft. x 8 ft.

21-year-old belt still going strong

RAYBESTOS-MANHATTAN INC. reports that a 4,000-ft. oil-proof synthetic rubber belt continues to run after 21 years of nearly maintenance-free service. The Paranite neoprene belt carries tons of oil-treated coal daily at a generating station in Bridgeport, Conn. The belt has outstanding oil and flame resistance properties.

Suggests broader use of containers

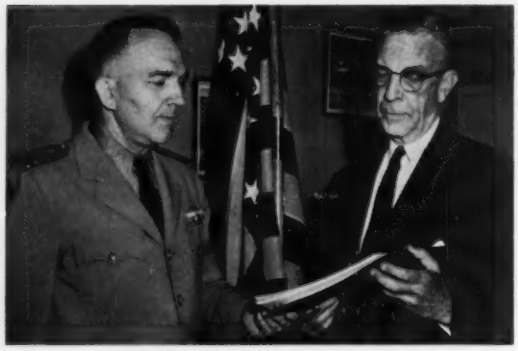
CHICAGO MILL AND LUMBER CO. proposes a Plant Analysis Program to reduce costs through wider use of containers. The program goes into four major cost areas—receiving, in-plant handling and storage, interplant movement, and shipping. It determines how containers can reduce costs in palletization, floor space use, parts protection, inventory control, inspection, assembly, and others. Chicago Mill President J. H. Dunn says it's the complete function of containers that determines their cost, not just their cost on arrival. "We consider containers to be a methods tool that can be used as an aid to manufacturing," he adds. The firm offers a "Container Utilization Evaluator," guide to container use in the manufacturing plant. Write Chicago Mill and Lumber Co., 33 S. Clark St., Chicago 3, Ill., for a copy.

Adds line of special trailers

TOWMOTOR CORP. now offers a line of Strad-O-Lift trailers, designed to pick up large unitized loads and carry them at highway speeds. They simply back up, straddle the load, lift it, and carry it off. The trailer hitches to a standard truck tractor. Distribution will be handled in the East by Towmotor Corp., Cleveland, and in the West by Gerlinger Carrier Co., Dallas, Oregon. See Product News item on Page 40.

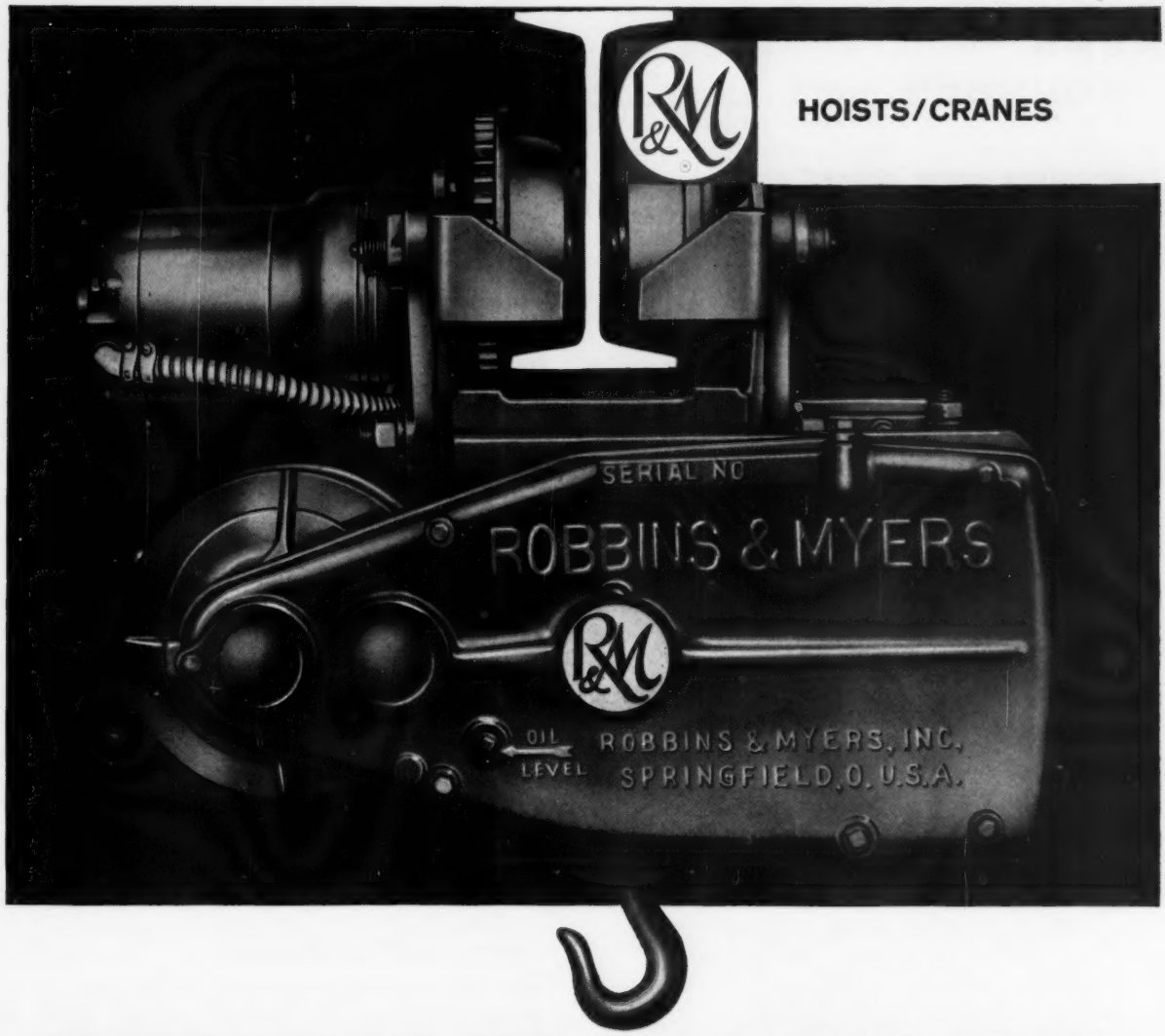
Yale wins military contract

THE NAVY PURCHASING OFFICE awarded a $1,265,000 contract to the Material Handling Division, The Yale & Towne Manufacturing Co. The contract was for 287 fork lift trucks of 6,000-lb. capacity, to go to the Army. They are being manufactured at the firm's Phila-



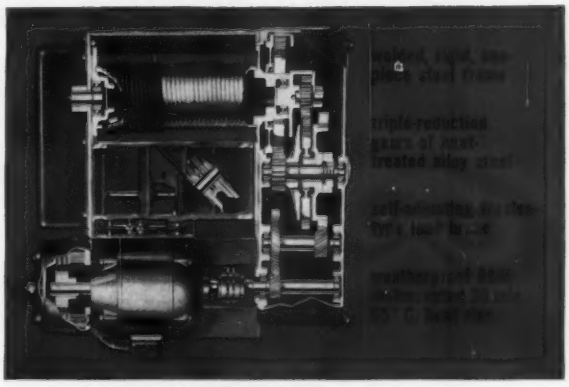
delphia plant which employs 2,400. Capt. Charles A. Appelby hands the contract to James V. Marron, Yale director of Industrial Relations.

Continued on page 8



BEAM-HUGGING R&M HOIST SAVES SPACE

R&M Type F Hoists hug the beams to save valuable overhead plant space! The drum is along one side of the beam; the motor-and-brake assembly parallel along the other side. This compact design—*yours at no extra cost*—gives inches more usable lift, without building higher runways. It permits closer end approaches, provides greater side clearances. Many safety features protect operator, hoist and load—weight-type upper limit switch, low-voltage control circuit, fully magnetic control, Weston-type automatic load brake, and others. Type F Hoists are available in four frame sizes, ½ to 10 ton capacity, powered by 1½ to 15 HP R&M motors. Mountings include lug suspension, push-type, hand-geared, and choice of three motor-driven trolleys. Write today for Bulletin 920-MH



take it up / *with R&M*®

ROBBINS & MYERS, INC., Springfield, Ohio

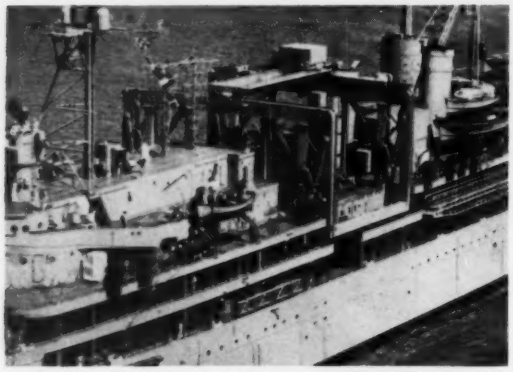
Electric Hoists and Overhead Traveling Cranes • Fractional and Integral HP Electric Motors • Moyno® Industrial Pumps
Propellair® Industrial Fans • R & M-Hunter Fans and Electric Heat • Trade-Wind Range Hoods and Ventilators
Subsidiary companies at: Memphis, Tenn., Pico Rivera, Calif., Brantford, Ontario.

Circle **108** on Reader Service Card

NEWS ROUNDUP

First bridge crane aboard ship

THE NAVY'S SUBMARINE TENDER, Proteus, uses a bridge crane for handling Polaris missiles. This is called the first successful traveling bridge crane to be used aboard ship. It was designed and built by Skagit Steel and Iron Works, with a.c. reator-type Load-O-Matic controls provided by Westinghouse Electric Corp. There are two hoists, 34-ton-capacity main and 4-ton whip. To conserve weight and space, two front-wired terminal block control panels are used, one for the hoists, the other for the trolley and bridge.



Slotted angle by Sturdi-Bilt

STURDI-BILT DIVISION, Union Asbestos and Rubber Co., introduced a line of slotted angle, calls it a universal and interchangeable new framing material. It comes 10 to the package in 10- or 12-ft. lengths with 75 nuts and bolts. It's ready for cutting and assembling into racks, carts, stands, maintenance structures. The angle comes completely punched, can be cut to length with any angle iron cutter. Distribution: electrical, mill, material handling suppliers. For more information, write, Sturdi-Bilt, Material Handling Division, Union Asbestos & Rubber Co. 332 S. Michigan Ave., Chicago 4, Ill.

Sees big sales in remote controls

MOORE ASSOCIATES INC., control systems firm, predicts annual sales of $50 million for electronic remote control supervisory systems in the petroleum industry by 1965. Big markets: pipelines, off-shore and leased wells, refinery and process operations, according to

compare

LIFT TRUCKS

Power and Performance

Allis-Chalmers' OWN — POWER-CRATER engine is engineered specifically for Allis-Chalmers lift trucks. Has unique crater-shaped combustion chamber that sets up violent swirling turbulence for thorough mixture of air and fuel, resulting in responsive power and maximum fuel economy.

Operator Effectiveness

Familiar, automotive-type controls — wide, adjustable seat — unobstructed floor — these and many other conveniences help operators work faster, safer.

Accessibility

Service and maintenance in a minimum of time.

Versatility

Masts, carriages, forks and attachments to fit the job — constant-mesh, two-speed transmission or POWER SHIFT torque converter drive — choice of fuel and tires. New special-purpose trucks, with high underclearance and quickly removed counterweight, in 6,000, 7,000 and 8,000-lb capacities.

ALLIS-CHALMERS

Moore Vice President James B. Bullock. He sees extensive computer programming used by firms with more than 150 wells. Refineries also will need computer loop control systems, he says.

New standard rubber drum for fuels

THE ARMY DEVELOPED a 500-gallon collapsible rubber container for carrying fuel to combat units. It's expected to make fuel transport cheaper by eliminating multiple transfer and handling. The single container (center truck) carries as much fuel as 100 jerrycans (left) or ten 55-gallon steel drums. The empty rubber drum weighs 250 lb., folds into one-fifth the size of the full drum. It's based on U. S. Rubber Co.'s Sealdrum, a commercial container. But additional qualities were built in for rugged use in service.

New electrode for fuel cell

YARDNEY ELECTRIC CORP. announced a newly-designed electrode which produced an "impressive" decrease in polarization within a fuel cell. Radioisotopes are used as a catalyst for the oxygen electrode in low-temperature alkaline electrolyte. This provided a current density of 150 ma/cm^2 for extended periods at polarizations of .2 to .3 volts. The voltage did not change with time. The firm now is testing the operating life of the electrode. The electrode was developed under direction of Dr. Ricardo Salcedo, a Spanish scientist.

Seminars on military packaging

THE U.S. ARMY SIGNAL SUPPLY AGENCY is conducting a series of seminars and workshops on MIL-STD-726, Packaging Requirements Code. Invited are packaging and inspection people from industry and government. Schedule: Philadelphia, Washington, New York, Lexington, Ky., Boston, Chicago, Sacramento, and Los Angeles. For more information write Army Signal Supply Agency, 225 S. 18th st., Philadelphia, Pa., Attention SIGSU-F7-2.

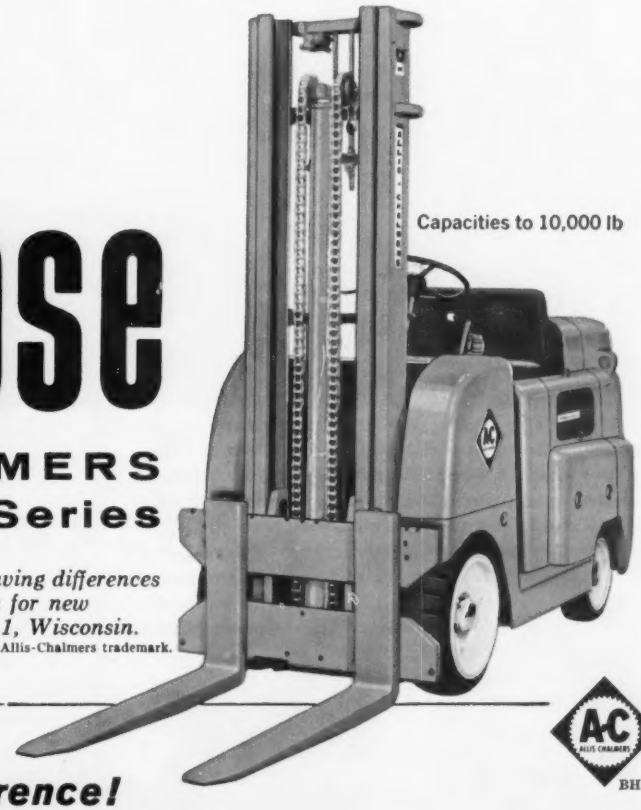
Continued on page 10

and you'll choose

ALLIS-CHALMERS "F" Series

Have your dealer show you the many dollar-saving differences in Allis-Chalmers "F" Series lift trucks. Ask for new bulletin BU-680. Allis-Chalmers, Milwaukee 1, Wisconsin.

POWER-CRATER is an Allis-Chalmers trademark.



Capacities to 10,000 lb

A-C ALLIS-CHALMERS

BH-180

. . Lift Trucks with the Dollar-Saving Difference!

Circle 4 on Reader Service Card

Take a new look at LP-Gas...

LP-GAS GIVES 2 TO 3 TIMES THE OPERATING HOURS BETWEEN OVERHAULS

LP-Gas is the clean, dry fuel that's easy on an engine. There's no dilution of oil, no sludge, far less engine wear. Engines give 2 to 3 times the normal operating hours between overhauls. You often use the same oil 5 to 10 times as long. You get 2 to 4 times the spark plug life. There's virtually no carbon monoxide—no fume problem. And LP-Gas is completely safe and low in cost. Conversion is easy. Write today for new 20-page booklet on industrial uses of LP-Gas, to: National LP-Gas Council, 1515 Chicago Ave., Evanston, Ill.

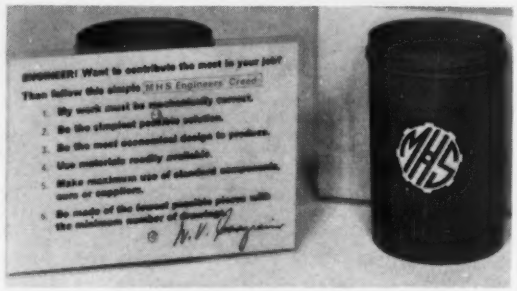
NATIONAL LP GAS COUNCIL

Circle 92 on Reader Service Card

NEWS ROUNDUP

Where to begin cost cutting

AT MECHANICAL HANDLING SYSTEMS INC., each engineer and draftsman keeps his pencils and small instruments in a holder on which is bolted a card. It carries the official engineer's


ENGINEER! Want to contribute the most in your job?
Then follow this simple MHS Engineers' Creed:
1. My work must be unconditionally correct.
2. Be the simplest possible solution.
3. Be the most economical design to produce.
4. Use materials readily available.
5. Make maximum use of standard components, ours or suppliers.
6. Be made of the fewest possible pieces with the minimum number of operations.
W. V. Casgrain
MHS

creed of the company, developed by President W. V. Casgrain. The firm reports that this constant reminder of lowcost design principles already has had a good effect and there are several concrete examples in evidence.

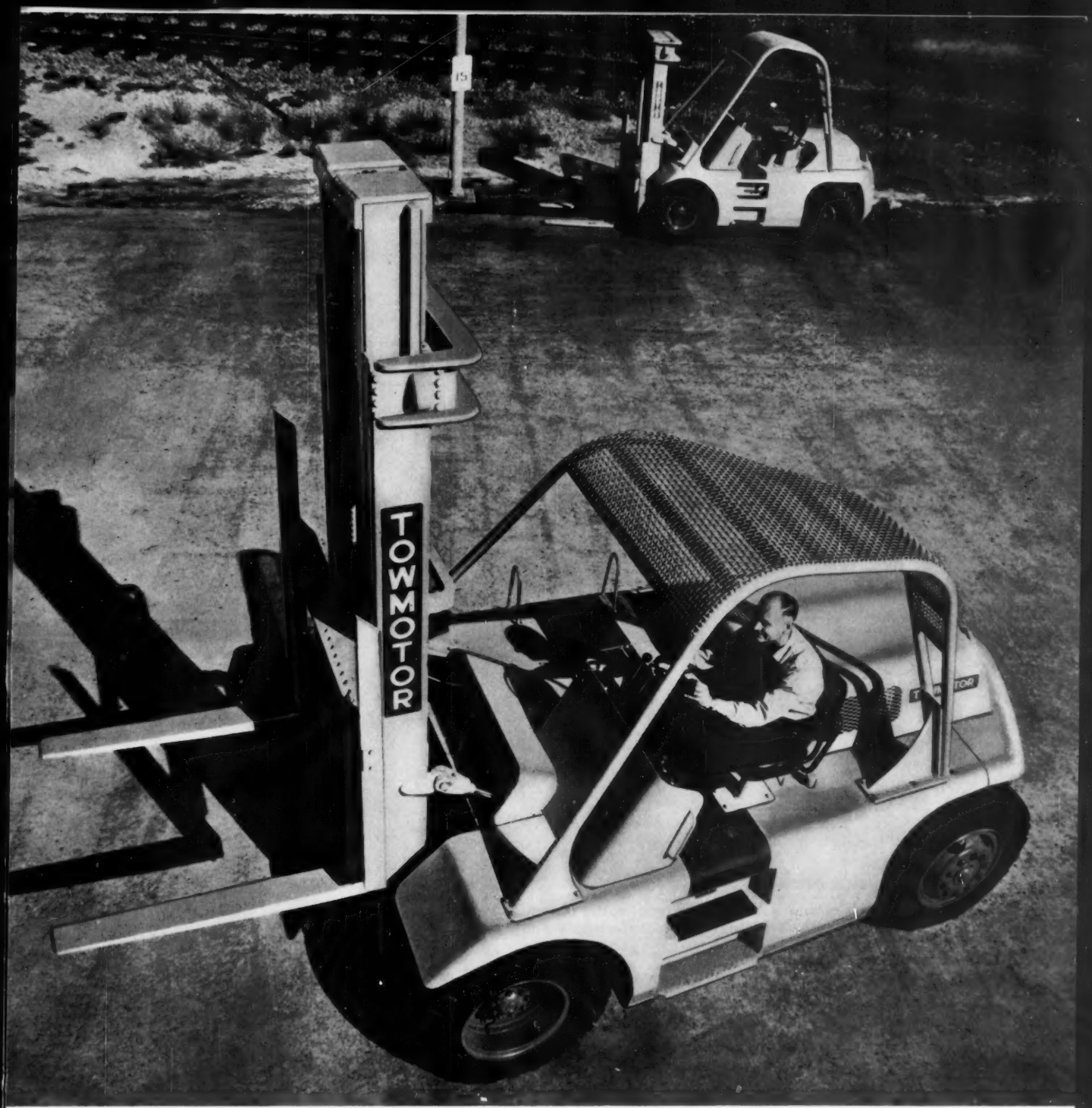
Opens new plant near Chicago

SPOTNAILS INC. opened what it calls the nation's largest plant devoted to making portable nailing machines and long fasteners. It's in Rolling Meadows, Ill. The new plant provides four times the firm's previous space allotted to research and development. Another feature is a new testing laboratory.

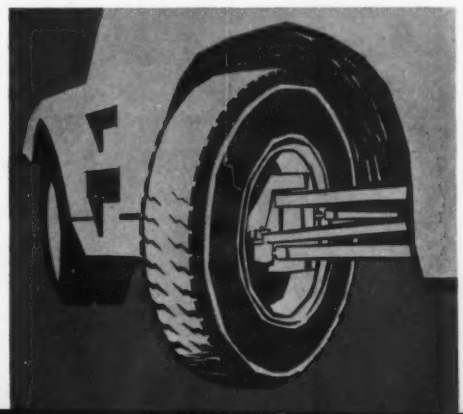
Flying crane control rooms for ships

TWO UNUSUAL GANTRY CRANE CONTROL ROOMS are vital equipment aboard two new American President Lines cargoliners now under construction. The control rooms are more than 35 ft. long, weigh nearly 7 tons, are mounted on the boom of an overdeck gantry crane. It handles containers 20 x 8 x 8 ft., weighing up to 25 tons. The control rooms provide a single package for all crane control equipment, simplify maintenance, reduce control installation costs. Controls are for motors which drive the hoist (200 h.p.), trolley (75 h.p,), gantry travel (two at 15 h.p.), boom extension (15 h.p.), and container leveling (5 h.p.).

Continued on page 14



Pivot-action steering axle is an outstanding feature of new Towmotor "Monarch" Series fork lift trucks (above), with load capacities up to 24,000 pounds. Fast, smooth maneuvering results from Monarch's wider track axle pictured below. It pivots in rubber to absorb road shocks.



TOWMOTOR'S ON THE MOVE

—leading the way with big fork lift trucks that offer new mass-handling techniques. Heavy duty trucks with "unitized" frame and body for a long lifetime of low-cost maintenance. Lift trucks engineered for extra road and load visibility, better maneuverability, easier operation. Move more with Towmotor fork lift trucks—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.

TOWMOTOR
THE ONE-MAN-GANG®

Circle **121** on Reader Service Card

WHY

do more than 4,000 plants use *American*

adjustable STORAGE RACKS

?

Stronger Construction

Specially roll-formed Posts are extra heavy gage steel . . . sturdy Stringers are one-piece continuous welded steel tubing . . . Upright Frames are cross-braced against sway . . . Turnbuckles "level out" uneven floors.

Quicker Assembly

No special tools required . . . no welding or costly bolting . . . all parts scientifically engineered to hook easily and securely into place.

Easier Adjustability

Stringers work independently of any other part . . . they raise and lower like a window, on 4″ centers . . . make rigid connection when "locked" to post.

Greater Efficiency

American Racks use every inch of storage space . . . they save you time, labor and money from the very start of installation . . . provide industry's highest safety factor for utmost protection.

There's an American Storage Rack for every storage need

Send for Catalog!

A typical American Storage Rack installation

AMERICAN METAL PRODUCTS COMPANY
STORAGE RACK DIVISION
5961 Linsdale Ave. amp® Detroit 4, Michigan

Manufactured in Canada by Sunshine-Waterloo Co., Ltd., Waterloo, Ontario
Circle 6 on Reader Service Card

Cure: None! (for solid tires in this condition)
Remedy: Smart operators specify MONARCH SOLIDS made with exclusive MONOLOK* process!

Hundreds of industrial tires fail every day because they are used under conditions for which they were not designed. Result . . . dollars lost for downtime, excessive maintenance and early replacement. Consider your requirements . . . do they call for truck operation over loose scrap . . . through brine and acid solutions . . . over rough surfaces . . . or under conditions of excessive heat? These are the critical operating factors that cause premature rim separation. Check with your Monarch representative today . . . he will prove to you that MONARCH MONOLOK tires will last longer in your plant.

10183-MR

*MONOLOK . . . Monarch's revolutionary new process bonds a tough new rubber to metal permanently. Both **Mono-Cushion** and **Universal** tires are made by this method.

THE MONARCH RUBBER COMPANY
210 Lincoln Park
Hartville, Ohio

923 Fisher Building
Detroit, Mich.

4140 West Fullerton
Chicago 39, Ill.

Western Warehouse
Reno, Nevada

Circle 85 on Reader Service Card

PMMI PACKAGING SHOW

DETROIT NOVEMBER 7-10

COBO HALL, Detroit, will be the site of the Packaging Machinery Manufacturers Institute Show of 1961, Nov. 7 through 10.

Over 20,000 are expected to visit exhibits of 216 manufacturers of packaging machinery and related products, publishers, and service firms.

Show hours. Nov. 7 through 9 are 10 to 6, and on Nov. 10, from 19 to 2.

Educational theme. An educational seminar, a Conference-Workshop, will run at the same time as the show on Nov. 8 and 9. Central theme: "Planned Maintenance—Profit Tool of Modern Management."

Displays. There will be packaging machinery, labeling devices, wrapping machines; can, bag, bottle, envelope, and tube fillers; sealing machines, imprinting equipment, carton formers, bottle cleaners; adhesives, scales, plastics, foils, and other packaging materials.

Pertinent people. The show committee includes: W. W. Anthony, Jr., chairman, Crompton and Knowles Packaging Corp.; K. B. Hollidge, Arthur Colton Co.; W. J. Rothfuss, The Cryovac Co.; Richard Wellbrock, New Jersey Machine Corp.; K. M. Peterson, Pneumatic Scale Corp., Ltd.; A. R. Stevens, Elgin Mfg. Co.; and R. L. Sears, executive director, PMMI.

Past PMMI shows. The last was in 1959 in the New York City Coliseum. There were 155 exhibitors, 19,853 attended. Other shows were held in Atlantic City in 1958, and Cleveland, in 1958. There were 63,000 net sq. ft. of exhibits at the New York Show. At Cobo Hall, there will be 100,000 sq. ft. of manufacturers' exhibits.

Technical sessions. Discussion leaders will move among five groups at the Workshop, Nov. 9, held along with the PMMI Show of 1961. Instead of visitors moving from room to room, the leaders will move from room to room. This will give everyone a chance to participate in all five discussion topics.

At the opening Conference on Nov. 8, Richard Wellbrock, vice president, sales, of the New Jersey Machine Corp. will outline why PMMI is using the show occasion to initiate discussions on maintenance practices, and discuss new opportunities for user-supplier cooperation.

Workshop chairmen are: C. A. Claus, vice president, Eastern sales, R. A. Jones Co.; J. H. Brezinski, president, Roto Bag Machinery Corp.; E. J. White, manager, Packaging Department, Warner-Chilcott Laboratories; Jack Blane, manager of engineering, Ekco-Alcoa Containers, Inc.; and E. L. Kuhn, president, Consolidated Packaging Machinery Corp. ♦

RICHARD WELLBROCK
Conference-Workshop Chairman

K. M. PETERSON
Conference-Workshop Co-chairman

"The men who cope with today's complex high-speed packaging machinery must be educated for this new era in maintenance engineering through programs intermediate between those developed for professional engineers and those designed for craftsmen."

H. RUSSELL BEATTY, president of Wentworth Institute, Boston.

Planned maintenance — the profit tool of modern management

CONFERENCE PROGRAM
Nov. 8, 1961
9:30 to 12 Noon

Room 2001

Welcome
Richard Wellbrock, vice president, sales, New Jersey Machine Corp.

"Preventive Maintenance Pays"
E. W. Brennglass, president, Packaging Corporation of America.

"Do the Machinery Folks Understand?"
G. Douglas Reed, vice president, manufacturing, McCormick & Co., Inc.

"As the Machine Man Sees It"
L. J. Rouleau, field service representative, Economic Machinery Co.

"What the Technical Institute Offers"
H. Russell Beatty, president, Wentworth Institute, Boston.

"The Role of the Engineering College"
Cornelius Wandmacher, associate dean, College of Engineering, University of Cincinnati.

WORKSHOP PROGRAM
Nov. 9, 1961
9:30 to 12 Noon

Rooms 3035, 3042, 3043, 3044, and 3045

"Maintenance Features in Machinery"
Norman Yaeger
Central Engineering Department
Colgate-Palmolive Co.

"Communications"
Walt Jacquemin
Product engineer
The Pillsbury Co.

"Adjusting the Material, Not the Machine"
John S. Stokes
Installation and Service Manager
Stokes & Smith Co.

"A Packaged Plan for Effective Machinery Maintenance"
Glenn R. Engel Jr.
field sales manager
Equipment Division
The Cryovac Co.

WHAT'S BEST FOR BULK?

THIS CINDER PLANT OWNER HAS REPLACED HIS CONVEYOR SYSTEM WITH A FAST, BIG-CAPACITY CAT 966

Even the sound arithmetic of cost reduction doesn't tell the whole story. One thousand machine hours ago Victor Prep, President of this Frackville, Pa., cinder plant operation, decided to switch from a conveyor loading system to a mobile Cat 966—the largest of the Caterpillar line of wheel loaders (140 flywheel HP 966, 105 HP 944, 80 HP 922).

Prep's cost sheets and production records for those 1000 hours show that the 966 with a 4 yd. bucket has simplified his entire operation, stimulated production and cut handling costs. The 966 truck-loads up to 1400 tons of cinders a day and handles twice that tonnage working around the plant . . . it still has reserve capacity.

Maintenance, as Prep expected from the rugged Cat loader, has been strictly a few-minutes-a-day routine. The penny-pinching 966 has been working all day long on only 24 gallons of fuel. Add these low operating costs to the low purchase price and Prep's figures prove that he made a smart buy.

But figures are only part of the story. "Now," says Prep, "we have a high-reach machine which loads our big 20-yard trucks and railroad cars in a hurry . . . and then moves off quickly to another plant assignment." After 1000 high-production hours, his 966 has proved that it's always ready to go when he needs it.

Prep's operator is as sharp at 5:30 p.m. as he is in the morning . . . "I can operate the 966 for 10 hours and burn up no more energy than other loaders take for 7 hours' work." The wide-open 966 is safe, too . . . "You don't have to worry about sticking your head out of the cab when the bucket's in the air—lift arms and cylinders are out front where they should be."

Ask your Caterpillar Dealer to take an obligation-free look at your bulk handling methods. Let him prove, in black and white, how one of the three power shift Cat Wheel Loaders and their engineered attachments can fit your exact needs. He knows because he's been a heavy machinery specialist for years.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

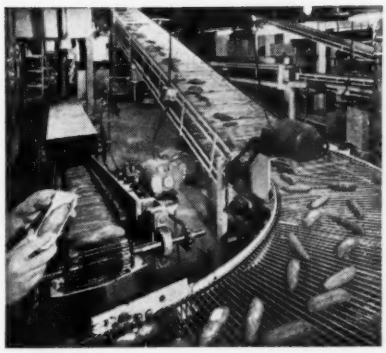
Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

CAT WHEEL LOADERS ARE MAKING OTHER LOADERS OBSOLETE

Circle **16** on Card

"WE HAVEN'T SPENT A DIME ON CYCLONE BELTS
SINCE WE PUT THE FIRST ONES IN 8 YEARS AGO.
I'D SAY WE GOT OURSELVES A BARGAIN."

That's what Francis Porambo, president of Franchett's Krullers, Inc., Elizabeth, N.J., had to say about his USS Cyclone metal conveyor belts. Franchett's three automatic cruller machines each turn out about 600 dozen crullers per hour, 14,400 dozen in the usual 8-hour day. Mr. Porambo says, "With our three machines, we've got just enough capacity to keep up with peak orders. The belts are the heart of the frying equipment; if they go we're in trouble. They've got to be rugged and well-engineered to keep working, sometimes 20 hours at a stretch. Cyclone has done such an outstanding job for us, there's no question about who will get first consideration the next time we need belts for any new equipment."



Here's a look at part of Franchett's 1000 feet of USS Cyclone conveyor belts. At left, you see crullers emerging from the fryer on a 9-gauge, tin-coated Flex-Grid belt. Size: 6"-wide by 12'-long. This belt is fed by an 8"-wide by 35'-long Equalized Spiral woven wire belt—18-gauge, Type 302 Stainless Steel. The Equalized Spiral is fed, in turn, by a 6"-wide by 7'11"-long Dual Weave belt—20-gauge, Type 302 Stainless Steel.

As the crullers reach the end of the 6"-wide Flex-Grid, they're automatically transferred to a 24" tin-coated Flex-Grid belt (right foreground) which takes them about 900' to the cooler. The cooler feeds the sugaring machine and then on to packaging. Trip time for a cruller: 40 minutes.

Next time you need a metal conveyor belt recommendation, give us a call. USS Cyclone makes more kinds of metal conveyor belts than anyone else in the world. Our service is the fastest in the industry. We've got 69 branch offices around the country to serve you. Wherever you are, we're reasonably close by. Check your Yellow Pages under "Conveyor Belts—Metal."

For strength, service, dependability.

American Steel and Wire
Division of
United States Steel

Cyclone Sales Offices Coast-to-Coast

Circle 24 on Reader Service Card

Somewhere near you...

there's a man and a forklift . . .

not an ordinary man . . . not an ordinary forklift. The man is an experienced Clark service technician. The truck is a Clarklift . . . sometimes misused, sometimes abused beyond reasonable limits. Still it keeps lifting, hauling, storing.

The man is adding the priceless ingredient to this workhorse of the warehouse. The ingredient is service . . . Clark Planned Maintenance at the job site, Genuine Clark Original Equipment Replacement Parts. Service goes with the sale of every Clarklift whether it be in San Diego or Montreal; Collier City, Florida or Deep Creek, Washington. It's the added value you can measure. It's the best reason in the world to buy Clark.

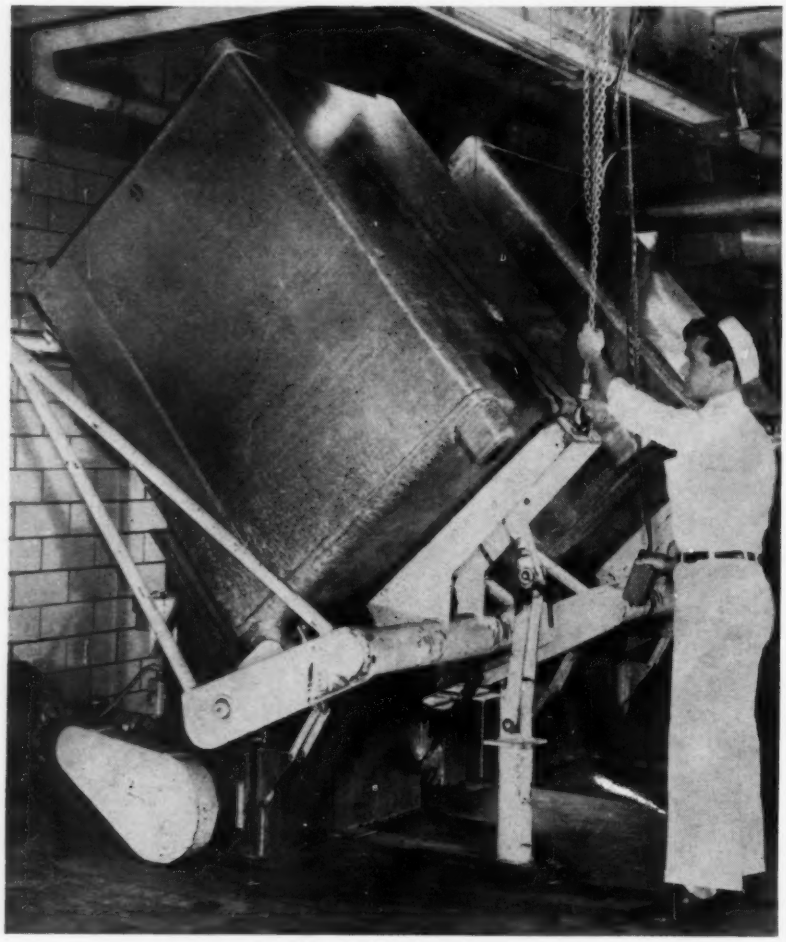
CLARK® EQUIPMENT

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek, Michigan

For complete information
about Clark Added Value Service
circle 77
on reader service card

COST CUTTING IDEAS

Bulk handling system keeps quality controls high



Portable tanks, called Tote Bins, act as a process bridge at Kroger Co.'s instant coffee plant in Cincinnati. The bulk bins serve as a quality control checkpoint.

Kroger's new plant discharges grounds automatically. It also has O-ring-sealed extractors, the latest roasters, a high capacity spray dryer, and its Tote System.

The coffee stays fresh. The Tote System forms a sealed intermediate coffee storage system. It protects the hygroscopic (readily absorbs moisture) coffee from losing flavor between manufacturing steps. Each 74-cu.-ft. aluminum bin holds 725 lb., assures that the product when packaged is exactly the same as that tested in the company labs. The company uses 47 bins.

It takes an hour and fifteen min. to fill a bin. The bins are gravity-filled from the spray dryer after the product goes through cooling and particle sizing. At this point, the plant operator makes a series of preliminary inspections of density, color, and moisture.

Coffee is normally stored for just less than a day, although weekends and slack periods call for longer storage. The containers are tightly sealed, so the waiting time does no harm.

A fork lift moves the containers from storage to a nearby dual Tote Tilt station, which feeds a single packaging line through two automatic hopper-fillers. The filler-hoppers have devices called Bindicators to prevent coffee backup. They cut off the gravity flow when the automatic hoppers are full.

The Tote Tilts are dischargers. They tilt the bin at 45 degrees for full flowout. They discharge the bins at rates that vary from 15 minutes to an hour and a half as desired, depending upon the packaging rate and the size of the jar being filled. Filling is done only on one shift. Extractors work is done around the clock.

Prepared for high demand. The 47 bins are turned over an average of twice a week, although they may have been filled, discharged, and refilled as frequently as every other day. Kroger says that it wouldn't need more bins to increase production, they would just turn over the bins at a faster rate, would need no additional manpower.

Kroger says maintenance is low, says the bins require only an occasional new gasket. A man inspects each bin before filling, brushes it. The bins are washed out regularly. Little cleaning is needed because the bins are resealed immediately after discharge, preventing contamination.—*Tote System, Inc.*

Circle **250** on Reader Service Card

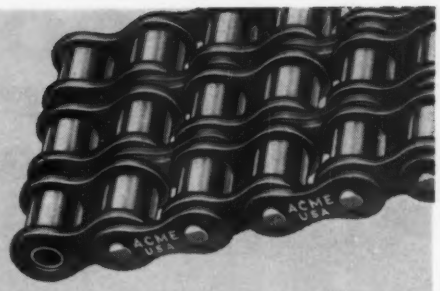
Continued on page 22

STANDARD ROLLER CHAINS

ACME chains are available in sizes from ¼" pitch, ⅛" width to 2½" pitch, 1½" width.

MULTIPLE ROLLER CHAINS

Multiple roller chains of double, triple and quadruple widths in all standard pitches in riveted types are ordinarily carried in stock — multiple chains up to 6 strands or wider can be furnished.



There's an

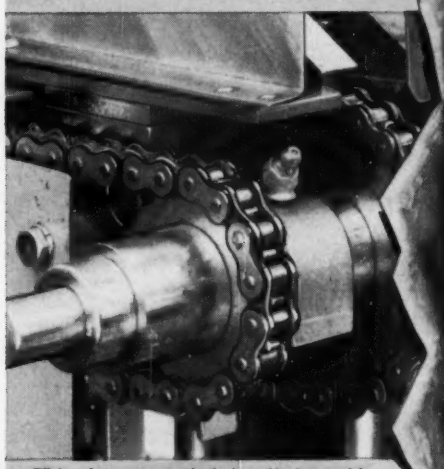
ACME ROLLER CHAIN

for every

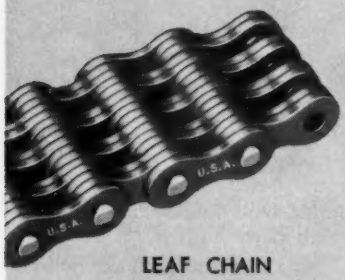
POWER TRANSMISSION REQUIREMENT

ACME Roller Chains are designed and built to perform each specific job with maximum efficiency and economy. Sprocket ratio, chain impact, tension, drive speed and other factors are determined, not on the drawing board alone, but in the field where ACME Engineers observe and test chains at work while new equipment is being designed. In that way, ACME chains are made to deliver positive power transmission with economy and dependability under all loads at all times.

For maximum performance at low transmission cost, be sure to specify ACME Roller Chains. They will give you the most value for your chain money. Call your ACME Distributor.



This shows a typical installation with positive power transmission where long life is essential.



LEAF CHAIN

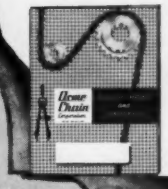
These are furnished in a variety of pitches, widths and strengths to suit different applications.

OFFSET CHAIN

Offset Side Bar Chains for drives that require herculean strength in construction machinery and oil fields.

EXTENDED PITCH CHAIN

Extended pitch chains are becoming increasingly more popular in many industries where high grade finished roller chains are required, at a lower cost than the standard pitch chains.



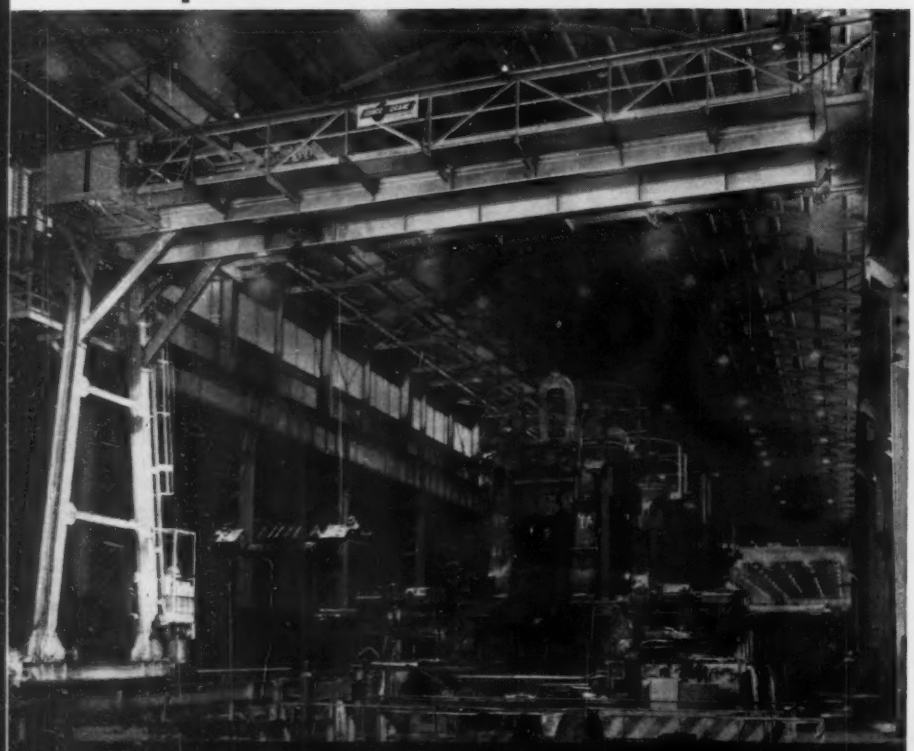
Write Dept. 29-R for new illustrated 106 page catalog with engineering section.

Acme Chain Corporation
Holyoke
Massachusetts

Circle 1 on Reader Service Card

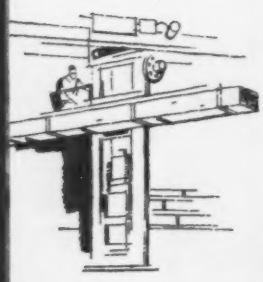
CONCO OVERHEAD TRAVELING CRANES

in capacities to 150 tons



Conco Semi-Gantry Crane custom-engineered for service in a Chicago area steel mill

CRANES HOISTS CONCO



Write for Crane Specifications Tablet containing five sets of general service crane specification data and forms.

For information on Conco Cranes, Hoists and Trolleys Request Bulletin 50008

Material Handling Division
CONCO ENGINEERING WORKS, INC.
Mendota, Illinois

AFFILIATES:
SPARTAN TOOL DIVISION, Powered Sewer Cleaning Equipment
FIELD CONTROL DIVISION, Barometric Draft Controls
CONCO BUILDING PRODUCTS, INC., Brick, Tile, Stone.

CHICAGO TRAMRAIL, manufacturer of "Trak-Rak" Stacker Cranes, Monorail Systems, and "Fas-Lok" Storage Racks at 1330 S. Kostner Ave., Chicago, is now a DIVISION OF CONCO ENGINEERING WORKS, INC.

Circle **17** on Reader Service Card

COST CUTTING IDEAS

Cord Strapping Helps Double Shipping Rate

Thayer Furniture Corp., Gardner, Mass., doubles its shipping output and saves a significant quantity of material by using cord strapping.

Thayer, which makes baby cribs, says "We like the new rayon strap. Our customers like it too. It's easy to open our cartons because you can cut cord strapping with scissors or knife. There's no trouble disposing of the strapping. You just put it in the waste basket like any other waste."

Packaging rate doubles. Thayer packages 45 to 50 smaller cribs an hour. That's about 300 a day compared to 150 before using the new rayon strapping. They pack 30 to 35 of the larger cribs an hour, also double the old figure.

Crib parts arrive at the packaging area on a conveyor. A corrugated pad serves as a buffer. Brown paper goes over the crib, then strapping, to hold the five pieces firmly together. Under the

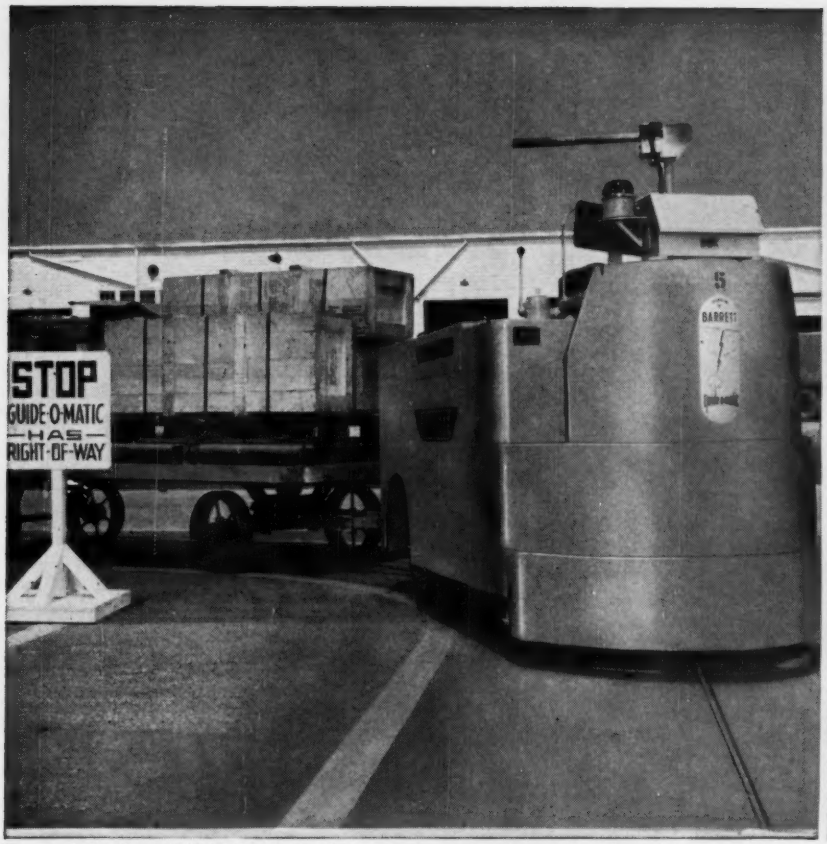
shipping table are a pair of rayon strapping coils. The strapping feeds through two screw eyes to the shipper, who quickly binds each set of crib parts with it.

The completed package goes in a 200-lb.-test corrugated carton.

Thayer says it likes the lightweight strapping because it handles easily, has no jagged edges, and cuts costs, because they no longer use corner protectors and other extra materials. One strap holds the smaller crib units, two straps the larger cribs.—*American Viscose Corp.*

Circle **251** on Reader Service Card

Continued on page 24



The operatorless Barrett Guide-O-Matic Tractor offers tremendous savings through planned material movement—every trip a pay load.

Is yours a mechanical or hydraulic hand truck problem? Barrett offers a complete line, such as the rugged, lightweight, hydraulic Model HX.

Another remarkable record-producer in the Barrett line—the powerful, efficient electric Barrett Palletier.

Engineered to the job...that's Barrett!

Every material handling job starts with the *problem:* how to move the product efficiently and at the lowest cost.

What's the *answer*? Select handling equipment engineered and built to do the exact job.

Three good examples demonstrate Barrett's *engineered* problem-solving ability. One is the operatorless Barrett Guide-O-Matic—an exclusive Barrett engineering development. Here's material handling at low cost, electronically—no waste motion or time loss.

Barrett also offers a complete line of hand trucks—with many exclusive engineering features. A third example is the Barrett electric Palletier—again engineered to the job.

Only Barrett offers a complete line from electronically-operated to hand-operated equipment. Your problems and needs can certainly be answered by Barrett.

Guide-O-Matic is registered by U.S. Patent Office

Check-Chart Helps to Make Selection—Use this check-chart as a guide to the selection of the correct equipment to handle your products

- ★ Type of equipment available
- ★ Loads vs. capacity
- ★ Speeds vs. distance traveled
- ★ Safety features
- ★ Over-all length
- ★ Over-all width
- ★ Wheel size and truck height
- ★ Aisle clearance
- ★ Ruggedness of construction
- ★ Ease of maintenance

Proved Handling Methods and Profitable Ideas—Get your copy of "Methods and Ideas," a picture-story showing how Barrett handling equipment works for industry. Forty-nine examples of correct design and construction applied to as many handling operations...ingenious applications of attachments ...how Barrett can solve your problem efficiently and economically. Send coupon now

Barrett-Cravens Company
614 Dundee Road • Northbrook, Ill.

Gentlemen: Please send me "Methods and Ideas." Also Bulletins on____Guide-O-Matic,____Model HX,____Palletier.

Name.....*Title*.....

Company.....

Address.....

City.....*Zone*.....*State*.....

BARRETT-CRAVENS COMPANY

Representatives in All Principal Cities

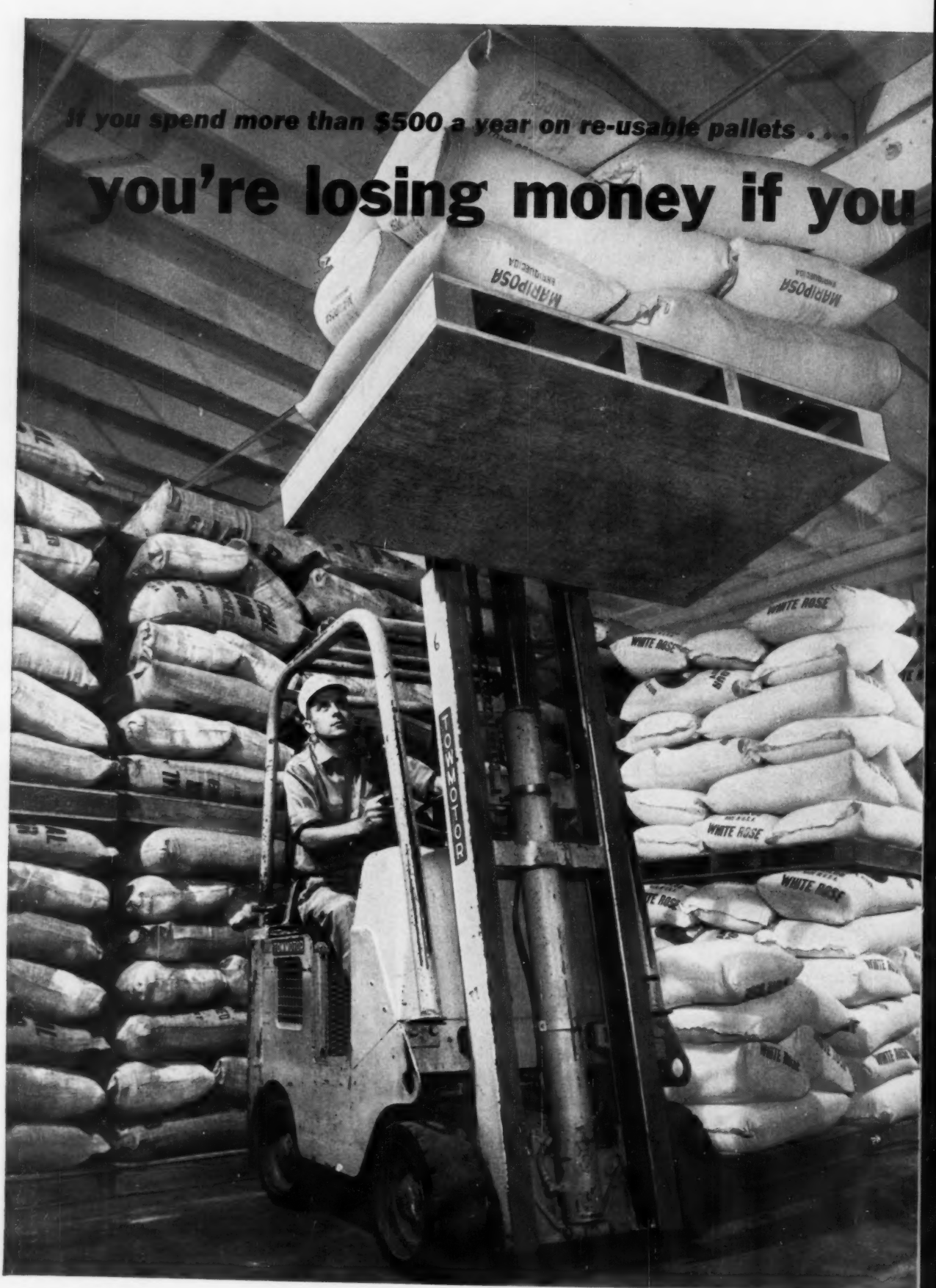
Canadian Licensee: S. A. Armstrong, Ltd., Toronto, Canada

Barrett Handling Equipment

BARRETT

ONE MAN DOES MORE THAN 3 OR 4...WITH A BARRETT

Circle 9 on Reader Service Card


If you spend more than $500 a year on re-usable pallets . . .
you're losing money if you
MARIPOSA
WHITE ROSE
TOWMOTOR

haven't switched to plywood

IN PALLETS, IT'S TOTAL COST THAT COUNTS. That's why plywood pallets are your best buy. True, you can get cheaper pallets. (You can buy more expensive ones, too.) But if you're interested in saving money next month, next year, and ten years from now, you'll choose plywood.

Here's why: *first*, plywood pallets cost practically nothing to maintain . . . because they just don't wear out. Plywood is engineered to last. It has all the natural toughness and ruggedness of real wood, plus *extra* strength and stability because of its cross-laminated construction. Plywood won't split, won't puncture, resists racking, won't come apart. It will take all kinds of abuse, heavy loads and hard blows, and still come back for more.

One big company reports an average 13-year life for its plywood pallets, compared with less than two years for lumber. Many firms say they're still using plywood pallets bought ten or more years ago. Not only have they been completely maintenance-free, but the typical plywood pallet outlasts four or five that are made of other materials.

Second, because of this amazing durability, you can forget about replacement costs when you use plywood pallets. And you'll find that production costs go down significantly too, because every time you have to pull a pallet out of line for repair or replacement, you lose valuable time.

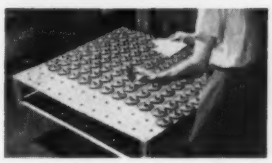
Third, plywood pallets mean lower freight and labor costs; they weigh from 20 to 50 percent less than lumber, in spite of their superior strength.

It's true that plywood pallets usually cost more, initially. But the first cost is virtually *all you pay*—while the total cost of a lumber pallet is many times its initial cost. In terms of dollars and cents over the long run, it's just plain good business to start with plywood pallets in the first place.

But economy isn't the whole story. Look at all these extras you get with plywood:

Protection: the smooth, solid surface of a plywood pallet, with no joints or protruding nails, means no snagging of packaged goods like flour, and no damage to easily scratched items like furniture. When West Coast Grocery Co., Tacoma, Wash., switched to plywood pallets (right), reports of damage to merchandise in cartons and bags practically disappeared. Plywood pallets are splitproof and have a splinter-free surface. Nails can't work loose.

More efficient storage: stability and rigidity of the plywood platform permit high, neat, quick stacking. Plywood pallets take far less storage space than lumber—often only half as much.



Versatility: plywood is easy to work and takes well to unusual fabrication requirements when you need to palletize odd-shaped or fragile parts or instruments. The plywood tote pallets above are used at Food Machinery & Chemical Corp.'s Peerless Pump plant (Hydrodynamics Div.) in Indianapolis. Holes of exact diameter were drilled in pallets' upper deck. Pump impeller shaft assemblies, inserted in holes, get maximum protection during intra-plant shipment and storage.

If you'd like to find out more about plywood pallets, write for Douglas Fir Plywood Association's free booklet on pallet specifications. Or if you wish, one of DFPA's 80 field representatives (located throughout the country) will come in to discuss your particular requirements.

For more information about fir plywood—its uses, properties and advantages—write
DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON
—a non-profit industry organization devoted to research, promotion and quality control
Always specify by DFPA grade-trademarks

DFPA TESTED QUALITY

Circle 32 on Reader Service Card

ONE SPOTNAILER SAVES $2000 IN 1 YEAR

Model L Spotnailer drives fasteners up to 2" long in a fraction of a second

- A Wisconsin manufacturer of household products reduced his net cost per pallet 17¢ and reduced pallet repair costs 47%.
- A California fruit packer reduced cost of lug boxes 55% and reclaimed half the boxes which were unrepairable when using hammer and nails.
- A Washington furniture maker reduced his crating costs ⅓ and used the same gun for furniture manufacture.

These reports are typical of companies who are saving $2000 a year with a Spotnailer. Others who build and repair boxes, crates or pallets report similar savings. To see how much money automatic Spotnailers can save you

...WRITE OR PHONE FOR OUR NEW, FREE FOLDER SHOWING PORTABLE NAILERS FOR CRATING

SPOTNAILS, INC.

Experienced Service-Sales Agents In Principal Cities.

1100 HICKS ROAD, ROLLING MEADOWS 125, ILLINOIS • CLEARBROOK 9-1620

Circle 118 on Reader Service Card

COST CUTTING IDEAS

Storage Space Used To Better Advantage

Delta Airlines handles drums better and uses storage space to better advantage at its new Atlanta Jetport, and credits this to use of a portable elevating truck.

They used to store the drums four to a pallet, and they stacked the pallets with a fork truck. When single drums were needed, or when drums were transferred from one pallet to another, they handled them manually. The warehouse supervisor, S. M. Foster, found the process unsatisfactory and costly. It tied up the fork lift truck and involved too much hand work.

Foster bought a portable elevating truck with a drum stacking attachment. He reports they halved their aisle space, increased storage space available by 30 percent. They

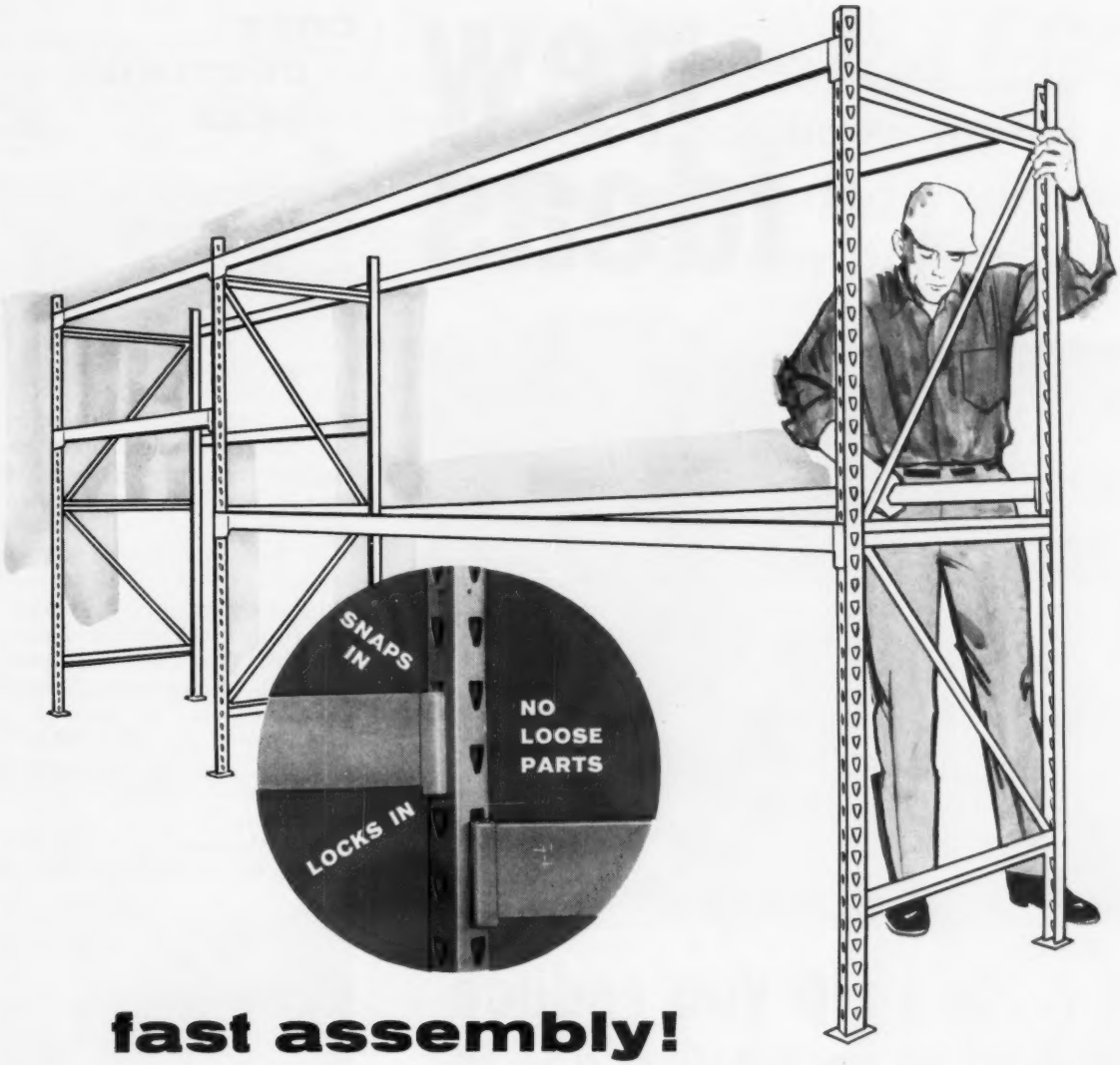
now store the drums three high, use 1" thick planks as dunnage.

No manual handling now.

"There doesn't have to be clearance between drums for the portable elevating truck," Foster points out. "There's no manual handling now, and we've moved the fork truck to operations more in keeping with its cost and capabilities." *American Pulley Co.*

Circle **252** on Reader Service Card

Continued on page 28



fast assembly!

EMI *air-row head pallet racks*

only 2 basic parts—fast assembly—easy to relocate.

EMI *air-row head DRIVE-IN RACKS*
EMI *air-row head DRIVE-THRU RACKS*

These strong, efficient, space-saving racks are all engineered on the AIR-ROW Head principle with basic interchangeable parts.

EQUIPMENT MFG. INC.

21552 HOOVER ROAD • DETROIT 5, MICHIGAN

Before you build, remodel or add to a storage area, FIND OUT ABOUT AIR-ROW HEAD RACKS

WRITE FOR DETAILED INFORMATION

YOU CAN STACK ANYTHING ON **EMI** RACKS

Circle **35** on Reader Service Card

new ideas

...to help you reduce rising warehouse costs

What can you do to combat rising storage costs? Must you build or lease additional facilities to gain needed warehouse space? How can you make existing storage space more productive?

You'll find the answers to these—and other warehousing and handling problems—in this newest RAYMOND Catalog. Profusely illustrated, this free 16-page reference is packed with ideas that could save your company thousands of dollars in the next 12 months. Write for it today!

RAYMOND® *Originator of Narrow Aisle Trucks*

The RAYMOND CORPORATION 3355 Madison St., Greene, N.Y.

Please send *free* catalog on RAYMOND Narrow Aisle Handling Equipment.

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

Circle **107** on Reader Service Card

COST CUTTING IDEAS

Unitized Lumber Handles Fast

Hallinan Lumber Co., Portland, Oregon recently began marketing packaged lumber in carload lots. The Hallinan Planing Mill at North Plains, Oregon uses the unitizing and interlace strapping system. Hallinan says the strapping has completely eliminated damage during shipment.

To begin unloading, a customer first shears the 1¼ x .035-inch heavy duty strapping used to interlace the 4-part stack in the doorway of the car. With a 6,000-lb.-capacity fork lift truck running on the ground (photo) he removes the stacks one-by-one. The straps on individual stacks are left intact for convenient rehandling, storage, and reshipment.

With the center of the box car cleared, the lift truck operator uses

a jack to place another interlaced stack on to rollers. He attaches a chain to a stack, pulls it to the doorway. Hallinan says the mechanical loading or unloading of unitized shipments is 12 times faster than manual handling of loose lumber.—*Acme Steel Co.*

Circle **253** on Reader Service Card

Rubber Faced Steel Plate Protects Concrete Slabs

The Pre-Cast Tile & Slab Co., St. Louis, broke green concrete slabs while moving them, and the breakage was running into real

money. The company worked out these unusual cushioning strips of rubber faced steel plate on the slab trailers (illustration).

The company now saves $30 a month per truck with the rubber

protection. And with 20 trucks in operation, this amounts to over $7,000 a year.

The rubber is bonded to steel sheets (16 and 20 gage) in thicknesses of ¼ to 1 inch.—*Gates Rubber Co.*

Circle **254** on Reader Service Card

Self-Dumping Hoppers Streamline Waste Handling

A waste handling program reduces costs and improves safety at the Northeast Division Plant of Scott Paper Co.

The method: self-dumping hoppers, moved and emptied by mobile equipment, on a regular schedule and checkoff.

They used to collect waste (scrap paper, floor sweepings, used cartons, steel strapping) in barrels and boxes. Two or three men emptied them casually.

Now there are 14 hoppers, established routes, and dumping

schedules. Self-dumping hoppers empty faster and safer than the old containers. The fork truck operator empties a hopper by tripping a release. The hopper rocks forward, dumps, returns to an upright position, and automatically locks.—*Roura Iron Works, Inc.*

Circle **255** on Reader Service Card

Continued on page 30

7-FT. AISLES

Now you can have them . . . without obsoleting your present racks or pallets

New RAYMOND® Reach-Fork® makes it possible!

IT'S TRUE! RAYMOND's new 4,000 lb. Reach-Fork electric truck right-angle tiers pallet loads as high as 20 feet from aisles as narrow as 7 feet* . . . nearly half the width counterweighted trucks require . . . giving you an extra row of storage per 12-foot aisle now used. Can increase storage capacity up to 50%.

NO SPECIAL PALLETS OR RACKS NEEDED

Operates from the aisle . . . forks reach right into the rack to pick up or deposit loads, extending 24" and back in seconds.

This is not a "beefed-up" model of a truck designed 10 years ago . . . but a brand new 4,000 lb. unit . . . built from the ground up to withstand tough, continuous performance, at fast speed, fully loaded, indoors or out . . . on long ramps . . . on slippery or uneven floors . . . and in narrow RAYMOND aisles. Operates hour after hour, day after day with minimum maintenance—there is no other truck like it! Send for bulletin.

*for exact aisle width, consult your RAYMOND representative.

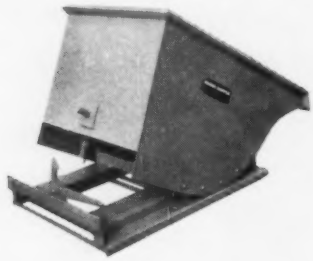
Ask about Raymond's lease-rental plan!

The RAYMOND CORPORATION
3396 Madison St., Greene, N.Y.
Please send new 4000 lb. Reach-Fork bulletin

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

Circle **101** on Reader Service Card

CUT SCRAP HANDLING COSTS ½!



DUMPS ITSELF RIGHTS ITSELF LOCKS ITSELF

With Roura Hoppers on the job —you'll see as much as a 50% cut in scrap and bulk handling costs. One man will do the work of two—in less time. Roura Hoppers are the easy, safe and efficient way to handle hot or cold, wet or dry bulk . . . such things as scrap metal, glass, small castings, cinders, punch press parts, hot forgings or cullet.

Thousands of plants across the country are relying on their Roura Hoppers. Any lift truck may be used to move a loaded hopper. A simple latch lets it dump and go upright again automatically. For more information, phone us collect at TOwnsend 8-3560 or use coupon.

SPECIFICATIONS: Eight sizes, ½ to 4-yard capacities. Constructed of ¾" steel plate with continuous arc-welded seams. Also available in heavier plate, galvanized, stainless or aluminum. Mounted on skids or choice of wheels. Standard models shipped from stock.

ROURA
Self-Dumping
HOPPER

WANT MORE DETAILS? Just clip this coupon to your letterhead and mail to
ROURA IRON WORKS, INC.
1411 Woodland Ave., Detroit 11, Michigan

Circle **106** on Reader Service Card

COST CUTTING IDEAS

Undercar Heaters Cut Thawing Time Up To 75%

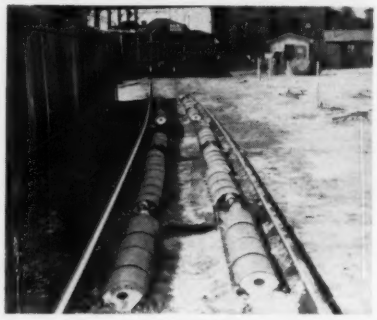
Thawing cars of frozen coal is simple for The Colorado Fuel & Iron Corp. at its Pueblo plant. CF&I installed a new sort of undercar heater, has cut hopper car thawing time as much as 75 percent.

The heaters are gas-fired, provide radiant and convection heat at the same time. This combination speeds thawing without requiring more manpower. The company cut thawing time for a 2-car train from four hours to one, without increasing the regular thawing crew.

Costs dropped, too, because there's less demurrage and car damage. These charges ran high when they thawed with gas torches.

Keeping the company's coke plant supplied during the winter requires thawing 60,000 tons. Temperatures often fall as low as –20 during the mid-November to mid-March thawing season.

Windbreak helps conserve heat. The company uses 16 heat-



ers, each rated at 500,000 B.t.u./hr. They're arranged in two groups of eight, thaw two cars at a time. The heaters need no permanent foundations, blowers, fans, or electric power. Installation is simple. A windbreak back of the heaters and tracks helps conserve the heat.—*Hauck Mfg. Co.*

Circle **256** on Reader Service Card

Continued on page 32

USE THE
LIFT-O-MATIC *POWER TRUCK ATTACHMENT*
for HANDLING DRUMS
with a
POWER FORK TRUCK
WITH FORKS LEFT ON OR REMOVED

Simple, automatic, mechanical handling of any size or type of drum—single or multiple.

WRITE FOR CATALOG
MARVEL INDUSTRIES, Inc.
2226 CLEVELAND ST., EVANSTON, ILLINOIS

Circle **90** on Reader Service Card

R-W PRODUCTIVITY METHODS ANALYZATION PROGRAM

...what it is and what it can mean to your overall cost reduction efforts

American Industry, caught between high taxes, increased manufacturing costs and unrealistic selling prices due to keen competition, is experiencing a tight "profit-squeeze." Because of this, industry's prime goal for the 60's is the achievement of substantial manufacturing cost-reductions. A substantial reduction in manufacturing costs can provide greater year-end profits than would a hard-to-achieve 20% increase in sales . . . and at far less cost. The basic problem is to achieve greater output with the same or even less expense.

We at R-W, as manufacturers of products for industry, have always endeavored to serve industry over and above the sale of our equipment. This service plus our inherent interest in a sound and profitable future for American Industry has motivated the development of our "R-W PRODUCTIVITY METHODS ANALYZATION PROGRAM."

This program provides a method whereby an R-W Applications-Engineer will work directly with your production or cost-reduction committees to analyze problems in your manufacturing and make recommendations as to how these problems could be solved through the improved use of materials handling equipment. Past experience has proven that materials handling offers industry its greatest cost-cutting frontier and the quickest way to achieve major cost-reductions is through proper conveyorization.

This program also provides a method to determine the *true cost* of new equipment. Keep in mind *true cost* is based on the cost-saving productivity of new equipment.

You are cordially invited to take advantage of the R-W PRODUCTIVITY METHODS ANALYZATION PROGRAM, it could help reduce your overall manufacturing costs tremendously . . . and, all it costs is a little of your time.

Your local R-W Application Engineer would appreciate the opportunity of discussing this program with you . . . write for details and a copy of the R-W "Cost Reduction Check List."

Sincerely,

Gordon S. Culver
President

RICHARDS-WILCOX MFG. CO.
MATERIALS HANDLING DIVISION
420 W. THIRD ST. • AURORA, ILLINOIS

Circle **109** on Reader Service Card

FREE 2 VALUABLE GUIDES

TO AID YOU WHEN SELECTING PNEUMATIC CONVEYING AND BULK STORAGE TANKS

BULLETIN M-260—12 page DAY pneumatic conveying guide just off the press. Discusses types of systems, illustrates and diagrams high and low density arrangements, shows equipment and tells "why" and "wherefore" of all types of pneumatic conveying including so-called fluidizing systems.

BULLETIN 574—12 pages, describes horizontal and vertical storage tanks. Points out savings and is filled with photos of various installations plus description of auxiliary equipment.

Whatever your pneumatic conveying or bulk storage problem, look first in these DAY bulletins. They are valuable aids in selecting and ordering the right equipment for your plant. For your free copies use reader service card of this magazine or write direct toDAY.

The DAY Company

874 Third Avenue N.E.
Minneapolis 13, Minnesota

In Canada:
The DAY Company of Canada Ltd.
15 Brydon Dr. Rexdale (Toronto), Ont

☐ Send Bulletin M-260 ☐ Send Bulletin 574
☐ Have DAY field sales engineer contact me.

We need information concerning_____

NAME_____

COMPANY NAME_____

ADDRESS_____

CITY_____ STATE_____

Circle **27** on Reader Service Card

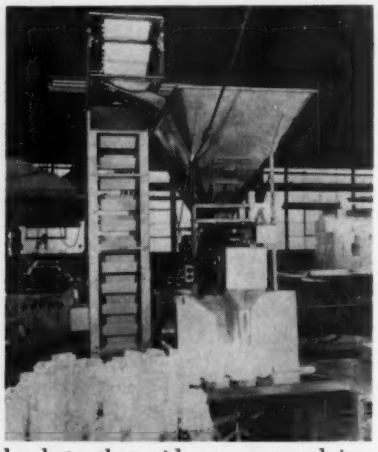
COST CUTTING IDEAS

Conveyor Boosts Safety and Efficiency

Manhattan Nut Company, New York, packs nuts in vacuum-sealed containers for national distribution. They have an automatic hopper-fed elevator-conveyor that replaces a manual transfer system of the nuts from cooling tables to filling machinery.

Before, two men did the transfer.

The new way. Nutmeats transfer at ground level from the cooling table to the 500-pound capacity bin of the lifter. The bin has a vibrator feed at the bottom. It transfers nutmeats, without breaking them, into inter-locking nylon



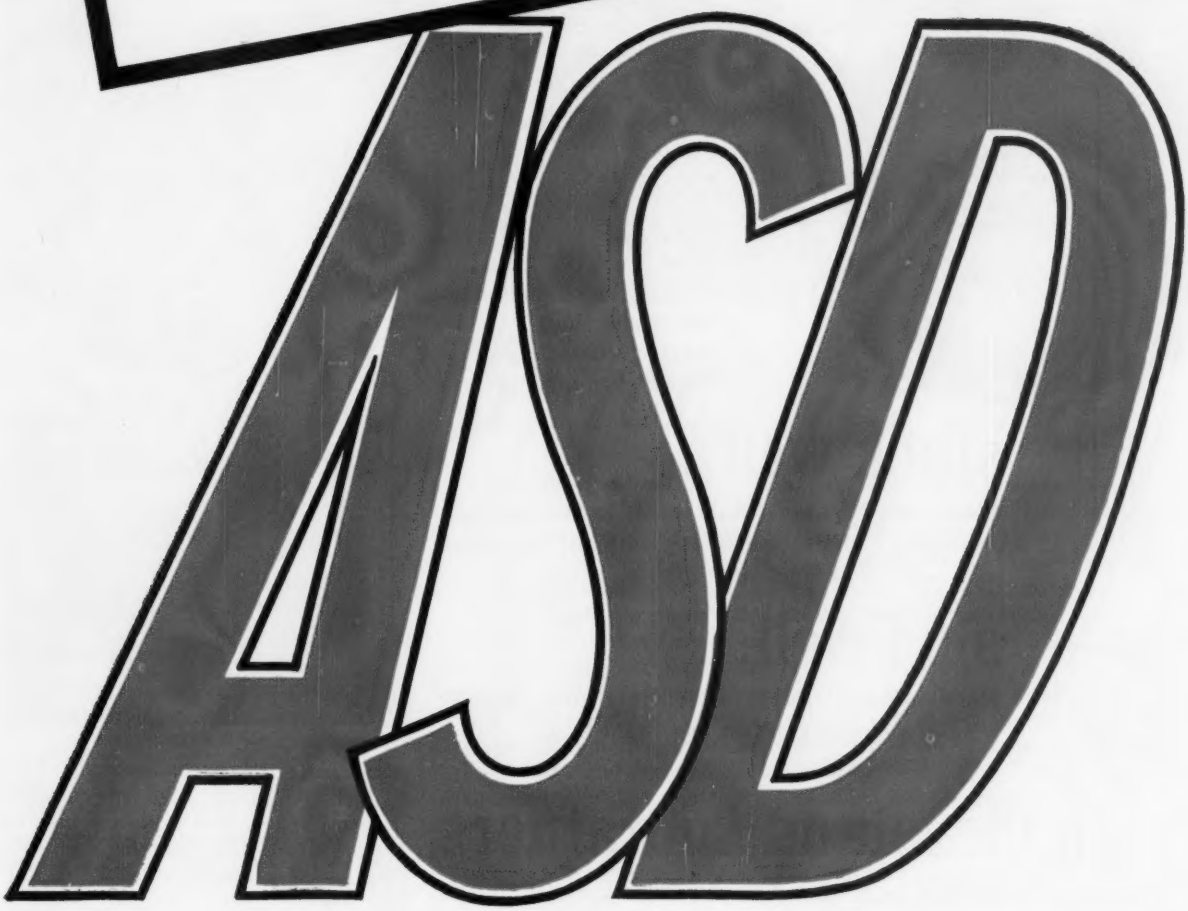
buckets that ride on a revolving chain, forming a continuous operation. Buckets carry the nutmeats up the 8-foot elevator, discharge nuts into the filler hopper, return for another supply. An automatic hopper level control maintains proper headweight.

The gravity filler deposits a measured amount of nuts into paper lined containers which are then weighed for accuracy. They are automatically vacuum packed and sealed. The machine closes the paper liner and applies a metal cover. Containers are then cartoned and prepared for shipment to distributors and retail outlets.—*Frazier & Son.*

Circle **257** on Reader Service Card

Continued on page 34

Coming next month!



A new concept in lift truck design
with dramatic advantages for both owners and drivers

Ask your
AUTOMATIC dealer
for advance information.

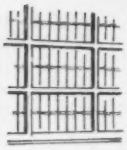
AUTOMATIC®

A Division of The Yale & Towne Manufacturing Company
141 W. 87th St., Dept. T1, Chicago 20, Illinois
Circle 7 on Reader Service Card

pulleys
(for example)

pack well..

Neat as a stack of coins... *all* the time! Snug fit cuts packaging costs... makes container even stronger.



stack well...

Costly shelf space is fully used... and product protection remains perfect! Container diameters show size of product at a glance.

ship well...

No repacking! Easily handled! Strong, spirally wound wall construction can "take" rough treatment.

in Cleveland Containers

Pulleys to projectiles, there are many different kinds of products that can be completely handled in Cleveland containers at low cost! It is very possible we may have a good solution to some of your material handling problems. Write our nearest office to learn if we can help you.

THE
CLEVELAND CONTAINER
COMPANY

6201 BARBERTON AVE. • CLEVELAND 2, OHIO

ALL-FIBRE CANS · COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

Plants and Sales Offices:
Cleveland
Chicago
Memphis
Dallas
Los Angeles
Plymouth, Wis.
Jamesburg, N. J.
Greensboro, N. C.

Sales Offices:
Detroit
New York City
West Hartford
Rochester, N. Y.
Washington, D.C.
•
Abrasive Division at Cleveland

Circle 19 on Reader Service Card

COST CUTTING IDEAS

Handling Cost Savings Pay For Fork Truck

Seven thousand dollars saved by converting from manual handling of lumber to mechanized methods paid for a fork truck in 18 months at Woodruff Lumber Co.

The savings were in labor costs for unloading and stacking lumber. Woodruff soon added another 4,000-lb.-capacity truck after success with the first truck. The two unload boxcars, stack in the yard,

load flatbed trailers, and serve a planning mill, band resaw, and timber sizer.

The trucks stack incoming lumber five loads high to conserve yard space. Top loads are banded to protect them from high winds.—*Clark Equipment Co.*

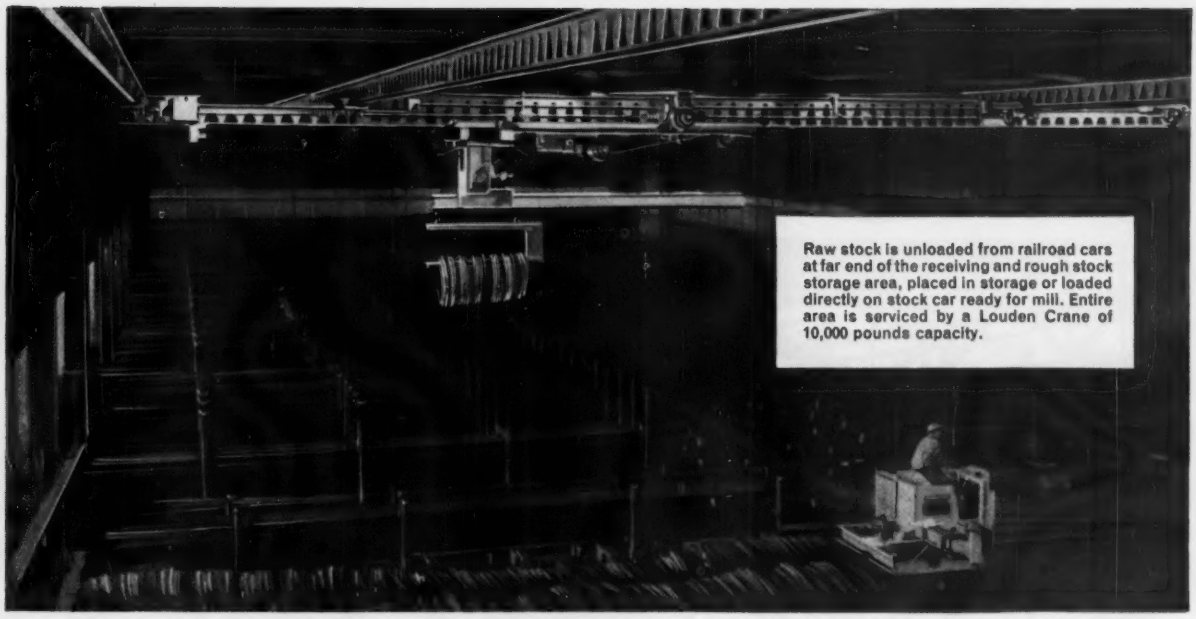
Circle **258** on Reader Service Card

Lubricant Saves $3,800 Yearly

Canadian Johns-Manville Co., Limited, Port Union, Ontario, had to find another lubricant for oven conveyor chains in the Mineral Wool Department of its Toronto plant. The old supplier discontinued the line. The new lubricant saves time and money.

Four conveyor chains, each 150 feet long, run through two 75-foot ovens as hot as 750 degrees F. They use a concentrated dispersion of colloidal graphite in mineral

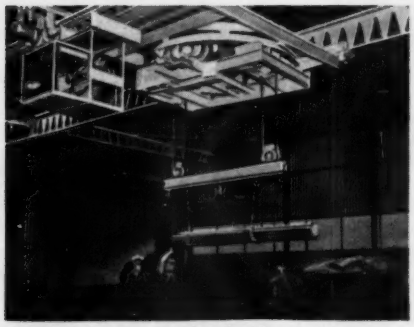
Continued on page 38



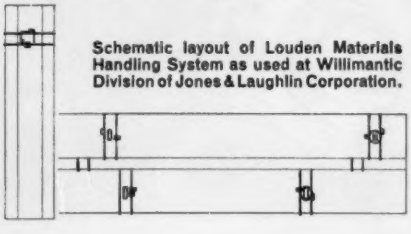
Raw stock is unloaded from railroad cars at far end of the receiving and rough stock storage area, placed in storage or loaded directly on stock car ready for mill. Entire area is serviced by a Louden Crane of 10,000 pounds capacity.

CUT COSTS from the start

Louden Cranes in mill move material through production steps. Here coils have just been removed from acid tanks. Four Louden Cranes handle operations throughout the mill. Two transfer bridges and interlocks provide complete flexibility.



Finished material is placed either in storage or loaded directly into trailers for shipment.



Schematic layout of Louden Materials Handling System as used at Willimantic Division of Jones & Laughlin Corporation.

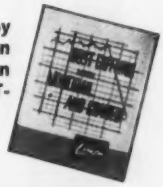
At the time the Jones & Laughlin Steel Corporation was considering a new plant at Willimantic, Connecticut, a structural engineering firm made a complete study and the results are of unusual interest.

By using an underrunning crane system, it was found that a substantial savings in building and crane costs would be realized, and since this system provided the required effective hook distance at a lower ceiling height, an additional saving in building cost could be obtained. From the start, costs were cut.

All of this points to the one reason why people buy Louden Materials Handling Systems . . . *to make more money*, via economies, expedited handling, much more productive use of manpower and floor space and through sheer increased production. Louden has the equipment, the engineering and the experience. It has pioneered many developments now standard practice in the industry.

When you have plant requirements involving lifting and transporting loads, call on Louden for suggestions. Louden's unparalleled experience and proven engineering leadership combined with Louden's broad line of equipment can save time and mistakes. Write or wire today.

NEW... **52 pages of illustrated applications... industry by industry. Get the latest and most complete information on planning and equipment selection for the best in modern materials handling. Write today for your copy "COST-CUTTING WITH MONORAIL AND CRANES."**



Louden MONORAIL & CRANES

THE LOUDEN MACHINERY COMPANY

1013 Broadway, Fairfield, Iowa

A Subsidiary of Mechanical Handling Systems Inc.

Plants in Fairfield, Iowa and Clark, New Jersey

SINCE 1867... THE FIRST NAME IN MATERIALS HANDLING

Circle **74** on Reader Service Card

ELPAR® ...engineered to

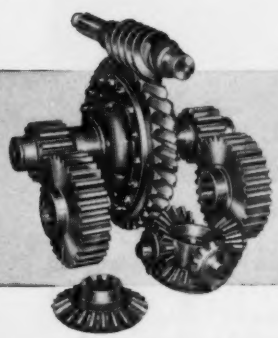
SAVE on operating costs

Elpar trucks deliver your loads when price-tag trucks fail. They cost less to operate... give more years of economic life on any job.

Only Elpar combines so many special features in a standard truck. To get the performance you pay for, let Elpar carry the load!

Match this advanced design with the trucks you've accepted up to now...

Drive unit is custom-built by Elpar. The "heart" is Elpar's own motor, engineered specifically for heavy truck duty. Drive unit mounted on truck centerline to balance load, equalize tension on drive shafts. Permits "center sill" construction... more frame strength. Optional gear ratios, motor sizes give choice of drive... to increase starting torque, boost speed, cut power drain.



Typical Elpar drive unit has worm and wheel primary reduction. Greater load-carrying ability, quiet, long-wearing. Induction hardened steel worm, phosphor-bronze worm wheel centrifugally cast for high density. Four-pinion differential carries heavier loads. Wheels mounted on tapered roller bearings. Hydraulic brakes applied to wheel drums.

For more information on Elpar trucks, write for this booklet—"Building A Quality Product"; then call your Elpar representative.

ELPAR®

ELECTRIC TRUCKS

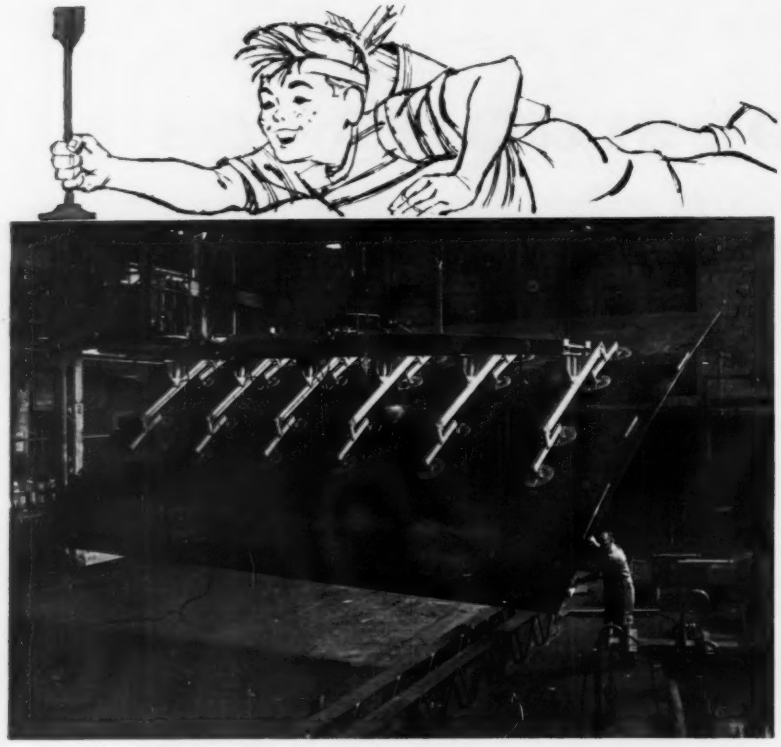
The Elwell-Parker Electric Company

4231 ST. CLAIR AVENUE • CLEVELAND 3, OHIO

In Canada: International Equipment Company, Ltd.

TWICE THE LIFE...ONE THIRD THE OPERATING COST

Circle **37** on Reader Service Card



EVER SEE A 12 TON SUCTION CUP?

IT CAN SPEED MATERIALS HANDLING IN YOUR SHOP

"Some stunt," you might say. Picking up a 12-ton plate with vacuum. Right. Quite a stunt—this plate is 40 feet long, 24 feet wide and ⅝ inches thick.

Now look at the cost side. It would normally take two hookup men to rig a sling to lift this plate. With Whiting Pressuregrip no hookup men are required*. The crane operator simply drops the Pressuregrip grippers on the plate and he's in business.

Pressuregrip comes in all sizes. Single gripper units speed machine feeding and small work handling. Special rigs handle cylindrical shapes — even heavy concrete pipe. No kidding.

*That fellow on the right is just there to give you an idea of the size of the plate.

The fascinating facts on Pressuregrip are available in Whiting bulletin No. V-100. Write Whiting Corporation, 15659 Lathrop Ave., Harvey, Illinois. In Canada Whiting Corporation (Canada) Ltd., 350 Alexander Street, Welland, Ontario, Canada.

See our catalog in Sweets

90 OF AMERICA'S "FIRST HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS

PRESSUREGRIP **WHITING**

MANUFACTURERS OF CRANES; TRAMBEAM® HANDLING SYSTEMS; PRESSUREGRIP; TRACKMOBILES®; FOUNDRY, RAILROAD, AND SWENSON CHEMICAL PROCESSING EQUIPMENT

Circle **131** on Reader Service Card

COST CUTTING IDEAS

spirits in a mixture composed of 2 gallons graphite to 45 gallons of an oil base of the British-American Oil Co. They put the blend into 5-gallon containers mounted directly over each side of the oven conveyor chains. An operator opens the petcock, and the lubricant drips on the moving chain.

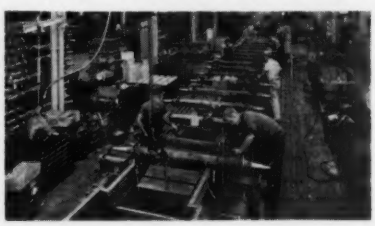
Chain cleans easier. J. D. Lowry, plant manager, reports yearly savings of $3,850, and says it's also easier to clean the chain.—*Acheson Colloids Co.*

Circle **259** on Reader Service Card

Saddle Conveyor Speeds Heavy Axle Assembly

Shuler Axle Co., Louisville, assembles a variety of heavy axles to order. A job may involve from 5 to 25 hand assembly steps. Once they pushed the axle tubes around on movable racks.

Now, all tubes are loaded by fork lift truck on a rack at the beginning of a heavy-duty saddle-type roller chain conveyor. They roll to an air-actuated escapement stop, which is synchronized to release tubes individually onto the



moving conveyor saddles. The saddles, on 3 ft. centers, allow working space, steady the tubes during the conveyor ride. Assembled axles move by monorail from the discharge end of the 50-ft. electric-powered conveyor to two heavy-duty turntables where welding is done.

Six men apply 25 complete brake assemblies an hour to the highest production model axle. That is quadrupled production per man. Bonus: more orderly layout throughout the plant.—*Logan Co.*

Circle **260** on Reader Service Card

Stretchable Bags Stop Breakage Complaints

Farm Belt Fertilizer and Chemical Co., Kansas City, Mo., says special multiwall bags cut their bag breakage 40 percent.

A large share of multiwall bags for fertilizer and plant foods are made of an extensible kraft paper called Expanda-Kraft. It stretches in two directions so it can absorb shock, give on impact. It resists forces that would break ordinary bags.

Cecil H. Fluty, general manager, says, "Since we started using stretchable bags for our products, breakage complaints from our dealer stores are no longer a serious problem." The company ships

more than a million bags of chemicals a year. They used to use 4-ply bags of kraft paper having a total basis weight of 170 lb.

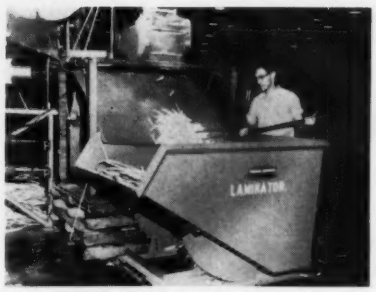
But tests with 3-ply extensible bags brought better results. The bags are made now from Expanda-Kraft rated at 60 lb., and two outer plies of the extensible paper with basis weights of 40 and 50 lb.—*Hollingsworth & Whitney Div., Scott Paper Co.*

Circle **261** on Reader Service Card

Hoppers Cut Handling Time in Half

Boxboard and Folding Carton Division of Continental Can Co., Inc., reduced scrap paperboard handling time 50 percent. At the same time, they eliminated maintenance costs and improved safety. They replaced eight hard-to-handle waste carts with five self-dumping hoppers.

The switch to hoppers was made in the egg safety carton depart-



ment of the Elkhart plant. Four hoppers collect trim and waste paperboard from trimmers.

The waste carts were steel tubs mounted on casters. A fork truck towed them from trimming machines to a beater. Towing was slow, and dumping awkward, requiring two men. Often they damaged the casters.

The hoppers speed the round-trip because they are carried faster on the forks and they dump faster than the carts. The hoppers dump themselves when the truck operator trips a release. After dumping, they automatically rock back upright, lock.—*Roura Iron Works, Inc.*

Circle **262** on Reader Service Card

10-DAY FREE TRIAL OFFER!
SAVE MUSCLE...
SAVE MONEY!
Laher 'LECTRIC LOADER LIFT
A MUST FOR A 1000 JOBS
LOADING AND UNLOADING—MOVE IT ANY WHERE—NO HOSE OR ELECTRIC CORD ATTACHED. YOU'VE BEEN LOOKING FOR A LIFT THAT IS EASIER TO MANEUVER—that is built so operator can get hold of it—that is lighter in weight and stronger in construction—that handles so easily you will never let go of it once you try it in your plant!
More capacity—2 powerful batteries instead of 1—highest quality battery charger built in—motor, pump, tank, valve, etc. ALL-IN-ONE substantial unit... the finest, most dependable made in America! You'll find competitive equipment clumsy and awkward to handle by comparison to the LAHER Loader Lift!
ORDER NOW—use for 10 full days and, if you aren't 100% sold on the muscle and money saved, you may return it freight prepaid.
PRICE $299.00 UP
LAHER SPRING & ELECTRIC CAR CORP.
2615 Magnolia Street, Oakland, Calif. • P.O. Box 731, New Albany, Miss. • 300 Madison Ave., Memphis • 5000 East 40 Terrace, Kansas City • 3041 Olive St., St. Louis • 807 E. 8th St., Los Angeles • 917 Florence St., Fort Worth • 98-12th St., San Francisco • 541 So. State St., Salt Lake City • 714 E. Pike St., Seattle • N.W. 15th and Davis, Portland • 1319 W. Second Ave., Spokane • 1616 L St., Sacramento

Circle **68** on Reader Service Card

PRODUCT NEWS

Loads to 40,000 lb.

Versatile Strad-O-Lift trailers pick up and haul (at highway speeds) pallet loads of boxes, bulk bins, containers, concrete blocks, pipe, steel sheet,

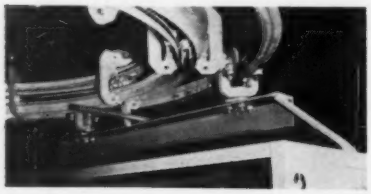
slabs, beams, lumber, and others. Or, the trailers can be enclosed to carry cargo needing refrigeration or special handling. Merely hitch the trailer to a standard truck tractor and take off. The trailers, low to the ground, are exceptionally stable on curves and rough roads. Adjustable hydraulic lifting shoes operate by power take-off from the tractor. Carry loads up to 20 tons. The trailers come in standard lengths up to 40 ft. Load and unload your cargo in less than a minute.

Towmotor Corp.

Circle **401** on Reader Service Card

Overhead Conveyor System

Chainless overhead conveyor system pushes 1,000-lb. capacity trolleys on a paralleling heavy-duty Mono-Rail track. Trolley capacities can range from light loads up to 4,000 lb. You can put spur tracks with manual switches at any point on the outer heavy-duty track. The carriers can circulate continuously with work that can be quickly lifted off, or the carriers may be switched into spur track stations when a longer unloading time is desired. You can



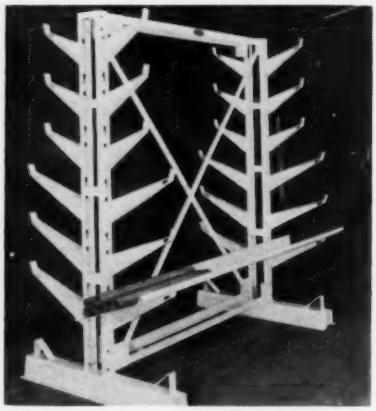
extend the spur tracks to other production or storage areas if you wish. Trolleys on the spur tracks may be hand-pushed, gravity-propelled on sloping tracks, or pushed by auxiliary conveyors. The trolleys have eight wheels, two on each side and two on the top and bottom of the trolley body. They ride inside a four-rail track system.

Conveyor Division
The American MonoRail Co.

Circle **402** on Reader Service Card

Rack Arms Button-On, Adjust

Though cantilever arm of storage rack supports 1,000 lb., you assemble them to uprights without tools. Headed studs on arms fit keyway slots of



uprights, adjust at 4-in. spacings. Assembled in minutes. Arms come in 14-in, and 16-in. lengths. Standard 7-tier double-arm unit holds 28,000 lb. For pipe, rod, bar, etc. To hold short lengths or parts, 12-gage pans to span two arms are furnished.

Jarke Mfg. Co.

Circle **403** on Reader Service Card

Open-Side Hopper

Ideal for handling long lengths, such as timber cut-offs, strip metal scrap, pipe ends, tubular products. This self-dumping hopper with open sides is made from 3/16-inch gage metal. Has reinforced angle irons welded across front and back. Available in widths ranging from 3½ to 8 feet. You dump the hopper by tripping a lock handle on the rear of the hopper. It automatically dumps, returns to the upright position, and locks. Units mount on skids for easy handling by fork trucks, may also

be equipped with casters so hoppers can be positioned manually near machines or to follow work flow.

Roura Iron Works, Inc.

Circle **404** on Reader Service Card

Double-coupler Car Spotter

New Trackmobile road-to-rail car spotter has power couplers on each side for greater drawbar pull. Called the 5TMG-DC, the spotter has 18,000 lb. drawbar capacity. Operator has perfect visibility in negotiating curves. He can position the machine so that the cab rides on either the

inside or the outside of the track curve. Available with gasoline or diesel power.

Whiting Corp.

Circle **405** on Reader Service Card

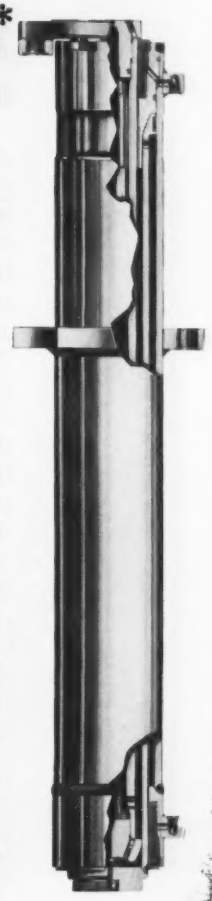
Continued on page 42

Circle **134** ⟶

YALE gas truck lift ...muscled by Ward Hydronics* cylinder

Yale's big industrial fork lift gas truck heaves two tons up eighteen feet in seconds, then gently eases the load down into the desired position. That takes muscle. And to repeat such lifts safely and reliably for years on end, when maintenance may be indifferent or non-existent, when loading may be haphazard, takes stamina. Ward Hydronics is an approved supplier of the Yale & Towne designed triple lift cylinder used. The Ward cylinder provides the muscle and the stamina needed . . . and it does so within sharp pencil competitive limits. Outstanding for resistance to breakage from impact or twist, outstanding for low maintenance say operators.

For quotations, for cylinder design aid, write Ward Hydronics Inc., Alden, N.Y.



Ductile iron castings, MIG welds, 0.001-in per side hard chrome plate, bronze guide, gall-freed pilot are some of the features that give this Ward Hydronics triple lift cylinder exceptional strength and life.

*Trade name, Ward Hydronics Inc.

McMurray

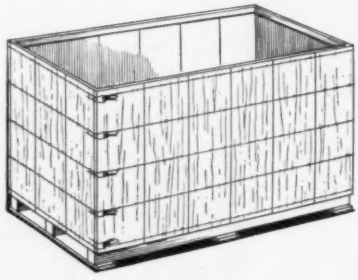
did you say **"WIREBOUND"?**

Sure we said WIREBOUND . . . SUPER-STRONG WIREBOUND. The built-to-take-it shipping container that can't be beat for maximum protection, versatility, shock resistance. Downright dependable. Always on the go, with all kinds of products. Used everywhere. Just remember the name . . . Superstrong Wirebound—get the rest of its story now.

SHIPPING SUPERSTRONG® CONTAINERS

WIREBOUND BOXES & CRATES

SUPERSTRONG WIREBOUND PALLET BOXES for economical, long-lasting, lightweight materials handling and storage.



● *GET THE FACTS*—
call CAnal 6-0973 or
write Dept. 300

WIREBOUND BOX DIVISION

St.Regis PAPER COMPANY

P. O. Box 4433 • Chicago 80, Illinois

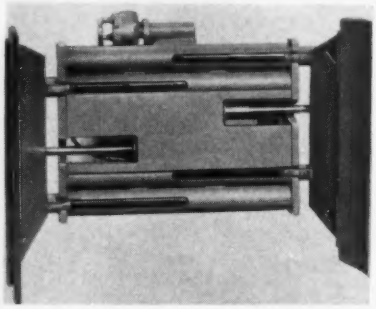
REPRESENTATIVES IN ALL PRINCIPAL INDUSTRIAL AREAS

Circle **110** on Reader Service Card

PRODUCT NEWS

New Paper Roll Clamp

The C5P paper roll clamp is lighter, stronger with high capacity—handles rolls up to 60 inches in diameter, up to 5,000 lb. Integral, box-type



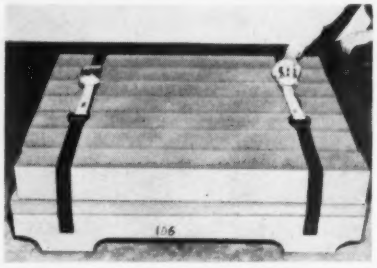
arms for better strength-to-weight ratio. It permits heavier roll handling by 6,000- and 7,000-lb. lift trucks. Other features: nylon-bushed arm carriers, nylon periphery bearings, 360° rotation in both directions. There's increased clamping force, larger contact pads for added roll protection, better gripping.

Cascade Manufacturing Co.

Circle **406** on Reader Service Card

Metal-Mesh Strapping

Strapping device ties material to pallet for transport between plants. It is made of two sections of metal mesh attached at one end to bolting plates or hooks for fastening to pallet,



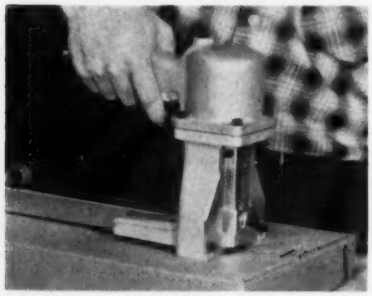
and joined at the other end by an adjustable buckling assembly. Buckling assembly consists of a Nylon strap which you insert into a ratchet tightening-buckle. With the ratchet you can put 1,000-lb. tension on the tie-down. A tongue of metal mesh lies under the Nylon to protect it from chafing against the load. You can use the tie-down repeatedly, save the cost of one-trip strapping. *Cambridge Wire Cloth Co.*

Circle **407** on Reader Service Card

Continued on page 46

Staples Cartons Blind

New stapler seals filled cartons entirely from outside (blind). Top-seals nearly all kinds of currugated container. Magazine takes six sizes



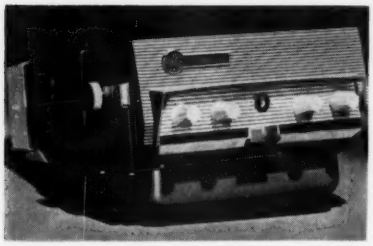
of staples. Will staple single-, double-, or triple-wall board. Powered by only 40 to 60 p.s.i. air will blind clinch staples through two thicknesses of double-wall board. Loads quickly, has single-adjustment clinch control. Also manually operated model.

Bostitch, Inc.

Circle **414** on Reader Service Card

Two-Frequency Radio

You can now listen to two dispatching systems on different frequencies, using only one dual-frequency, tran-

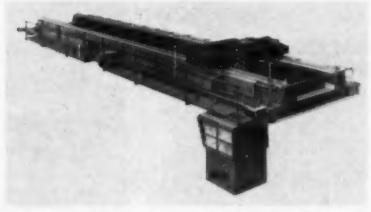


sistorized receiving unit. This new transmitter-receiver has only the "front end" of the second receiver—radio frequency amplifier and oscillator of second receiver feed to first receiver's high intermediate frequency amplifier input. This saves battery drain, space, expense. Transmitter uses FCC-assigned frequency, or high band frequencies of 130-174 mc., or low band, 25-30 mc.

General Electric Co.

Circle **415** on Reader Service Card

Overhead Cranes



The Shaw-Box Series D of overhead electric traveling cranes comes in capacities ranging from 3 to 25 tons, spans to 80 feet, equipped for floor or cab operation. Choice of lifts, speeds, and electrical currents. Cranes feature a compact, low-silhouette trolley design. This permits the crane to be installed extremely close to roof trusses to provide high hook lift, and good utilization of space. Features include: box section girders with internal diaphragming; rotating axles with anti-friction bearings and direct drive at wheels.

Manning, Maxwell & Moore, Inc.

Circle **416** on Reader Service Card

Magnetic Drum Memory

Magnetic drum delay/memory unit suitable as building block of system. Used for material handling and sorting, quality control, continuous material process control where flaw detection is recorded and rejection devices actuated. The magnetic oxide drum (12 in. diam., 5 in. wide) has 20 channels, storage densities up to 9,000 bits of information per channel. Adjustable to provide delays from 2 to 60 seconds.

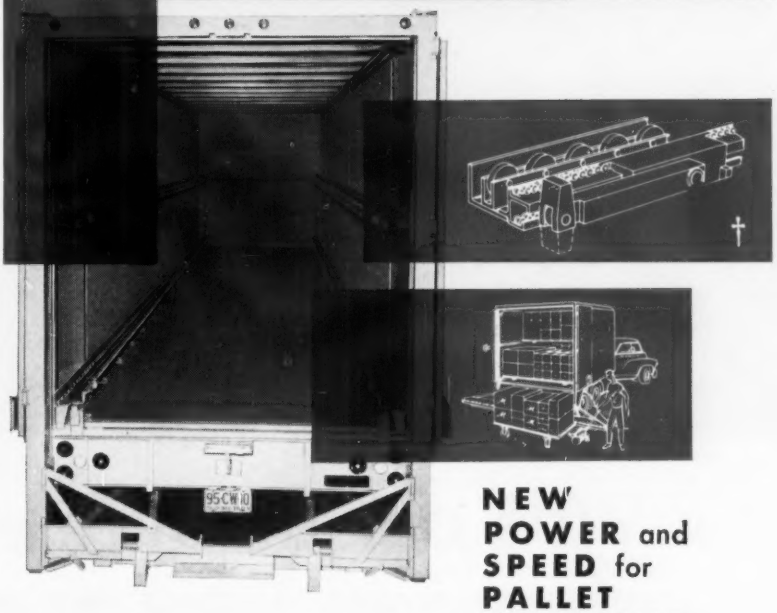
Electron-Ohio, Inc.

Circle **417** on Reader Service Card

CUT LOAD HANDLING TIME

AS MUCH AS 87% WITH

RELAE* Equipment



NEW POWER and SPEED for PALLET HANDLING

• ON OR OFF TRAILERS • IN PLANT • ON DOCKS • IN WAREHOUSE

Looking for a way to cut costs? Just as efficient MATERIAL handling cuts production costs, efficient PRODUCT handling can slash the cost of distributi... The RELAE System is product handling perfected through a quarter century's experience in moving merchandise quickly and at lowest cost.

TRAVL-TRAM (illustrated above†) is but one exclusive feature of the RELAE System. Push-button controlled power moves one, two or more pallet-loads onto or off of trailer quickly and easily; load-selective feature is another exclusive!

OTHER RELAE ELEMENTS include: Pallets with removable legs and wheels, frozen food and non-insulated cargo-tainers, powered or manual Spotters, RELAE-Lift for ground level loading-unloading and RELAE Chutes and Trailer Guide-Ways.

With the RELAE System, Pallet loads can be assembled in the plant, loaded for transport and unloaded at the destination . . . cutting overall distribution costs as much as 50%.

RELAE Equipment adapts to your present handling methods, to new or in-use trailers, offers many exclusive features which make it quickly pay for itself in handling and time savings alone! For complete details, write today for illustrated bulletin.

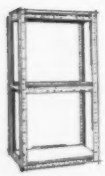
*T.M.-U.S. & For. Pats., Pats. Pend.

KAPPEN SALES COMPANY • 1238-G Enquirer Building • Cincinnati 2, Ohio

Circle **66** on Reader Service Card

IT'S ONE OF OVER 250 NEW ACME

PRE-CUT, READY-TO-ASSEMBLE SHOP EQUIPMENT, IN MOST NEEDED STYLES AND SIZES. Why pay a premium for shop equipment? Why settle for *almost right* design and dimension? Build it yourself from first-of-their-kind kits of Acme Steel's AIM Brand Slotted Angle. Just open the package, grab a wrench—and *go*. Anyone can bolt together tailored-to-the-task storage units, racks, carts, tables and benches. Each package brings you the strength, stability and assembly ease of AIM Brand Slotted Angle . . . but with the added convenience of pre-cut pieces. Everything's there: nuts, bolts, accessories, instructions. And, if your working



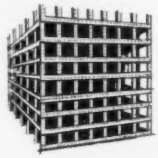
Customized storage units cost no more.

Eighteen sizes of flat bed carts.

Need sturdy steel-topped tables?

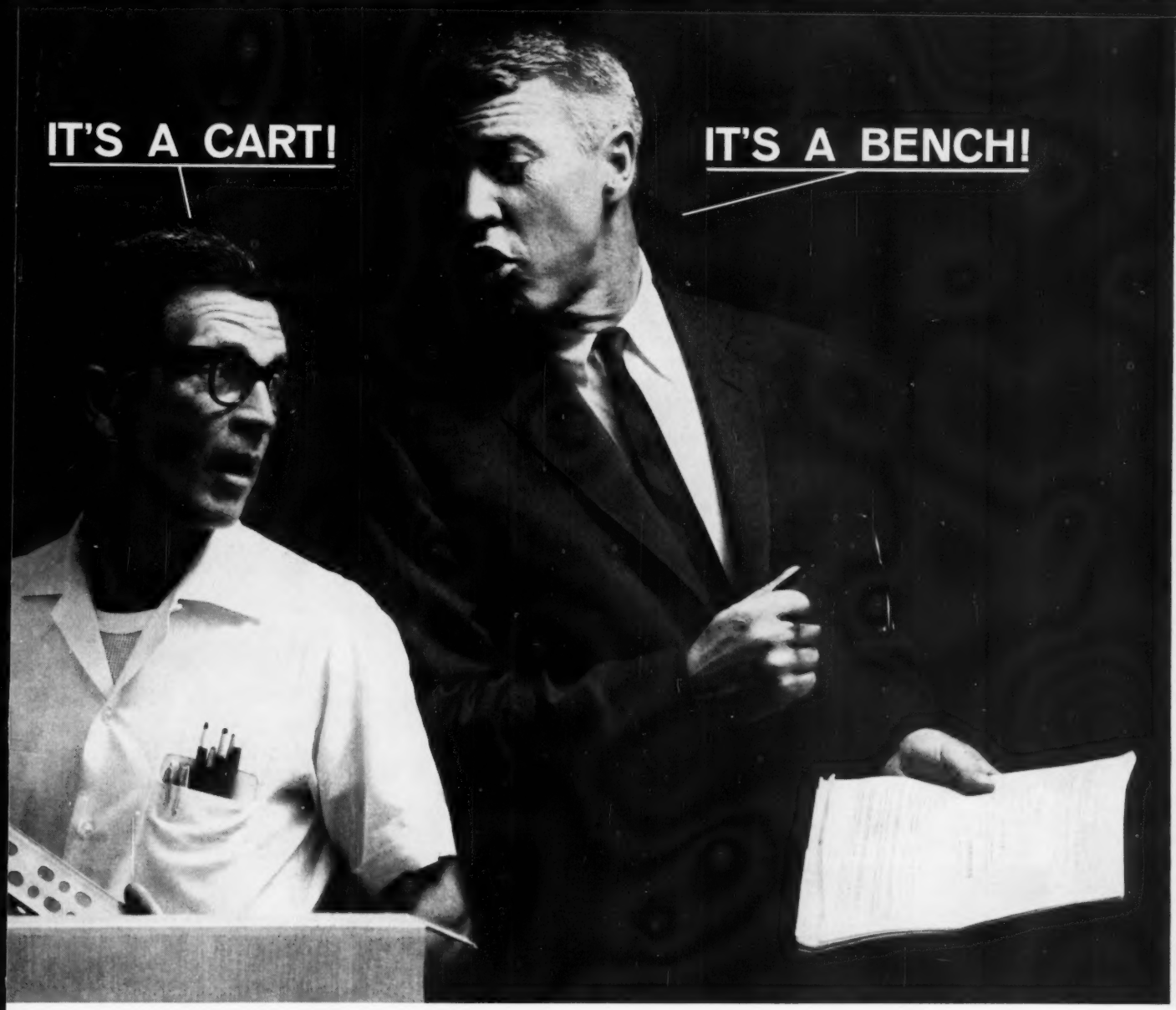
How many of your foremen need a desk?

Store bars and tubes in less space.



Cube type bar racks come in 48 sizes.

Rack your sheet stock at low, low cost.



STEEL SLOTTED ANGLE KITS . . .

requirements change, so can this galvanized steel framing. It can be adjusted to modify design, dismantled and reused for other jobs. You never have to discard it.

If you have yet to experience the time, material and manpower savings of slotted angle construction, you can now at minimum investment. Your local AIM Brand distributor has full facts. He's in the Yellow Pages under "SHELVING" or "RACKS." Like to see slotted angle in action? Write for our new 24 page idea book, "Creative Framing at Lowest Cost": Fabricated Materials Division, Acme Steel Company, Dept. MECP-101, 135th St. & Perry Ave., Chicago 27, Ill.

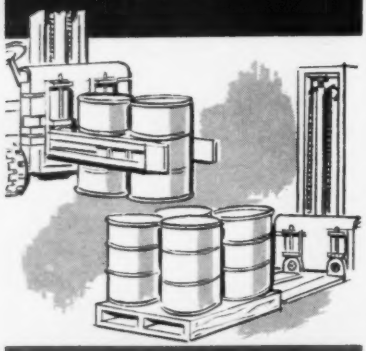
ACME STEEL

IDEA LEADER IN

FRAMING - STRAPPING - STITCHING

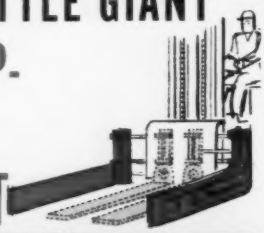
Circle **2** on Reader Service Card

CUT PALLET COSTS, SAVE SPACE...



handle loads fast — with or without pallets, using a

LITTLE GIANT GRIP-O-LIFT



Arms or Forks when you want them

Handling unit loads with or without pallets and using every foot of available storage space greatly increases profits.

Two or four drums, heavy cartons, bales, boxes, crates, and other types of unpalletized loads, or loads on pallets, can be picked up by a lift truck equipped with a **Little Giant Grip-O-Lift.**

Loads are held firmly — but gently. Flexible design prevents crushing when arms are used to clamp loads, while proper camber prevents loads from sagging. Arms turned to the fork position can enter and pick up loads on any type of pallet. Any lift truck equipped with a **Little Giant Grip-O-Lift** handles more loads — off or on pallets — faster and cheaper.

Write us for Brochure #8213 describing all models and sizes.

Available from all lift truck manufacturers and their dealers throughout the world.

LITTLE GIANT PRODUCTS, INC.

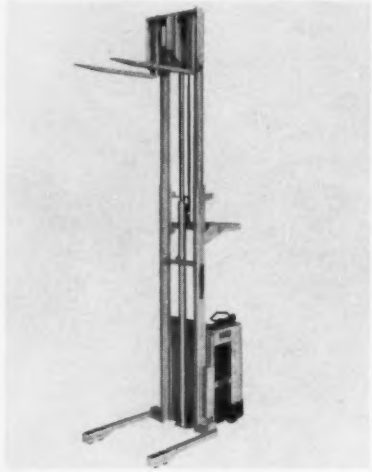
1530 N.E. ADAMS ST./ PEORIA, ILLINOIS

Circle **76** on Reader Service Card

PRODUCT NEWS

Narrow Aisle Electric Truck

More than 30 engineering changes have been made in the company's line of 2,000 and 3,000 capacity electric trucks. Restyled with open masts, the new models feature full "picture-window" visibility. Overall weight of



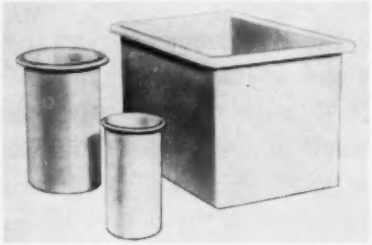
the uprights has been reduced 10 percent to lessen the dead weight load of the truck. A special high pressure hydraulic system increases lifting speeds, allows the use of smaller diameter rams. Nested mast sections are compact. Control and steering handles have been redesigned for safety and greater operation ease. Trucks will operate in aisles as narrow as 6 feet.

The Raymond Corp.

Circle **408** on Reader Service Card

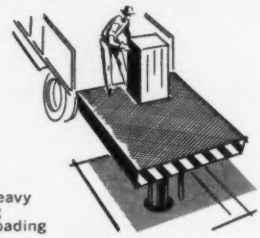
Tote Tanks Made of Plastic

Move, store, and process your fluid and powdered chemicals, foodstuffs, etc. in low-cost molded polyethylene



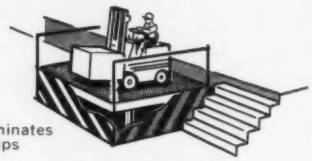
tote tanks. Polyethylene is colorless, translucent, inert to hydrofluoric and hydrochloric acids, concentrated NaOH, other reactive agents. It is odorless, non-toxic, stands temperatures up to 180° F. Rectangular tanks come in 10, 30, and 60 gal. sizes, cylindrical models in 15, 30, 55, 100, 200, 250,

YOU'RE LOSING



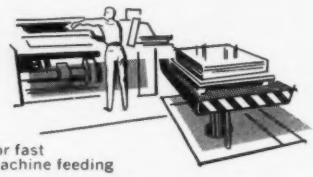
For heavy lifting and loading

MONEY IF



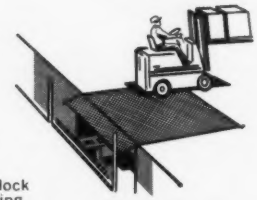
Eliminates ramps

YOU'RE NOT



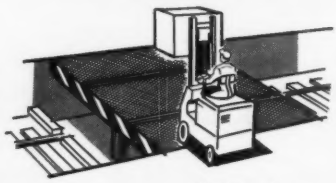
For fast machine feeding

USING THESE

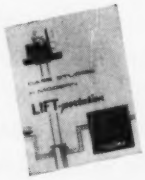


For dock leveling

GLOBE LIFTS



Crossover bridges



Free book with 59 applications illustrated. Write to us at East Mermaid Lane & Queen St., Philadelphia 18, Pa.

GLOBE

GLOBE HOIST COMPANY

PLANTS: PHILADELPHIA • LONG BEACH, CALIF.

Hoist is our middle name... our only product line

Circle **46** on Reader Service Card

STANDARDIZE-
ECONOMIZE-
...WITH

DARNELL
CASTERS & WHEELS

the Ultimate in Performance

There is a type of Darnell Caster or Wheel for every kind of use and floor. Made for light, medium and heavy-duty service, you are sure to find in the Darnell line the exact caster or wheel to meet your individual requirements . . . Ask your distributor for your copy of the new 192 page Darnell Manual

DARNELL CORPORATION, LTD.
DOWNEY (Los Angeles County) CALIF.
37-28 SIXTY-FIRST, WOODSIDE 77, L.I., N.Y.
36 NORTH CLINTON ST., CHICAGO 6, ILL.
1000 PEACHTREE N. E., ATLANTA, GA.

Circle **26** on Reader Service Card

with valve, drain, inlet, outlet, and overflow connections, as extra. Covers optional. *Apex Reinforced Fibre-Glass Div., White Sewing Machine Co.*

Circle **409** on Reader Service Card

Ink Dries Fast,— Even on Glass!

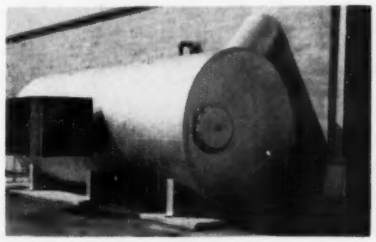
With new "All-Mark" ink you can mark glass, glossy coated paper, cellophane, plastics, rubber, metals. It dries hard on non-porous surfaces in seconds. Prepare the stencil in your typewriter or by hand-writing. Using the "handprinter" that holds ink pad and stencil you can mark 40 to 60

items a minute. Ink obtainable in 6 colors. *Weber Marking Systems, Inc.*

Circle **410** on Reader Service Card

Dry Air for Conveying

A Coblentz Dry Air System chills and dehumidifies compressor intake air. Results: dry and stable compressed air with no after cooling or drying equipment needed. Suggested uses: pneumatic conveying of grain, powders, chemicals, etc. The system draws in air, filters it, dries it to less than 38° F. dew point, chills it, shrinks it to high density, enabling the compressor to deliver a greater weight



of air per stroke. Other benefits: compressors deliver increased volume, lower horsepower required, maintenance reduced, operations cheaper and more dependable.

Glass Machinery Division
Lynch Corporation

Circle **411** on Reader Service Card

Continued on page 50

CONTROLLED DUMPING...

at selected heights — with greater safety using

LITTLE GIANT DROP-BOTTOM BOX DUMPERS

Operator regulates complete flow rate

Safe, fast and controlled dumping of drop-bottom boxes in any dumping application means greatly increased profits.

Scrap of all types, castings, forgings and a variety of other materials in drop-bottom boxes can be dumped at less cost by a lift truck equipped with a **Little Giant Drop-Bottom Box Dumper.**

Loads are picked up quickly at collection sites and transported to dumping areas. As dumper is mounted directly to the carriage of the truck, it does not interfere with fork operations. Operator elevates box to desired height and, slowly or rapidly raises bottom of box to dumping angle. Controlled dumping means greater safety to workers in area — especially when flow can be stopped — in an instant!

Any lift truck equipped with a **Little Giant Drop-Bottom Box Dumper** dumps more boxes — faster and cheaper.

Write us for Brochure #9118 describing all models and sizes.

Available from all lift truck manufacturers and their dealers throughout the world.

LITTLE GIANT PRODUCTS, INC.
1530 N.E. ADAMS ST./ PEORIA, ILLINOIS

Circle **78** on Reader Service Card

B.F.Goodrich

BEFORE THE B.F.GOODRICH TW ANALYSIS MAN stepped in, chipped brick was knocking out a tire every 2 weeks at Bowerston Shale Co., Hanover, Ohio. Now, with BFG Steel Protected tires on the job, tire service has jumped to 700 hours on the original tread—and many tires can be retreaded.

B.F.Goodrich Steel Protected tires take the bite out of brick handling

TW ANALYSIS MAN'S RECOMMENDATIONS RESULT IN LONGER TIRE SERVICE, LOWER TIRE COSTS

The production system at Bowerston Shale Co. calls for fork lift trucks to transport 3700-lb. loads of brick from kiln to storage area, then to trucks and freight cars. An efficient system, except that chipped bricks on concrete floors were forever putting the bite on tires and the company pocketbook. "We could count on a new tire every time a truck ran over chipped brick," says the plant superintendent.

To stop rising downtime and run-away costs, the company called in the B.F.Goodrich Tire & Wheel Analysis Man. He studied the situation, then recommended a switch to B.F.Goodrich Steel Protected pneumatic industrial tires. They're built with 2 plies of steel cable under the tread that shrug off impacts and defy punctures. Brick chips have yet to put the bite on BFG Steel Protected tires. They've stood up so well that many can be retreaded!

This case history is typical of the savings B.F.Goodrich Tire & Wheel Analysis Men offer. Without cost or obligation, the TW Analysis Man will study your setup—floors, loads, equipment, etc. Then he'll recommend the BFG tires that will give longest service at lowest cost—advice that is unbiased because B.F.Goodrich makes a complete line of industrial tires. Why not take advantage of this free BFG service? Mail the coupon today.

A special B.F.Goodrich consulting service is available to manufacturers of materials handling equipment.

A FREE B.F.Goodrich TW Analysis can save you as much as 50% on industrial tires, as much as 20% on maintenance costs. Mail the coupon today.

The B.F.Goodrich Company
Dept. TW-851, Akron 18, Ohio

Please send me additional information on your free Tire and Wheel Analysis Plan.

Name_____

Company_____

Street_____

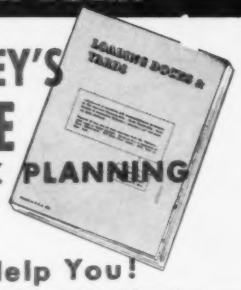
City_____ Zone____ State_____

Specify **B.F.Goodrich tires when ordering new equipment**

Circle 48 on Reader Service Card

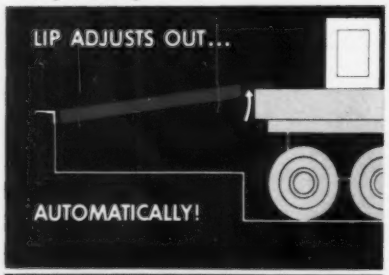
PLANNING A NEW TRUCK DOCK?

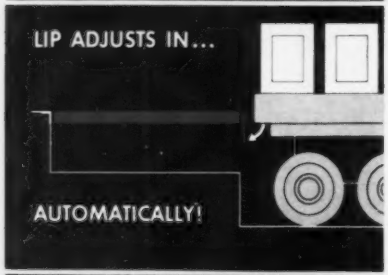
KELLEY'S FREE DOCK PLANNING KIT

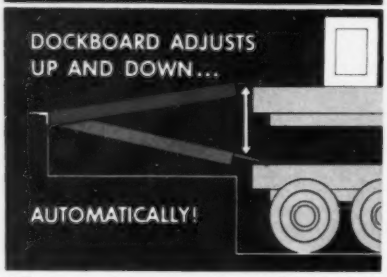


Can Help You!

Whether you're at the blueprint or "just thinking" stage, you need Kelley's brand new reference booklet on loading dock layout. It provides important data on driveway, aisle, canopy and door requirements, dock heights, current truck-trailer dimension restrictions, etc. Also, includes complete specs on industry's No. 1 Adjustable Dockboard—Kelley's ADJUST-A-LIP. Make yours a modern, efficient and safe dock operation. Act now! Mail coupon today!







FREE Get the FACTS! Send for details TODAY!

☐ FREE KIT — "How to Plan a Profitable Truck Dock Operation." Get Booklets on Dock Safety, Modernizing, Levelation Data, Dock Designs, etc.

☐ FREE SURVEY — No obligation.

Tear out and attach this coupon to your letterhead. Sign your name and mail to:

HI-LO Adjustable DOCKBOARDS

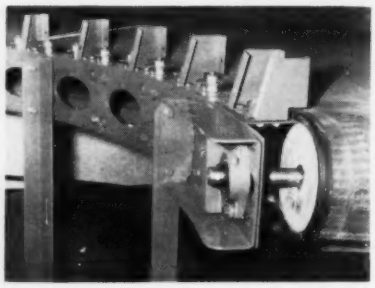
KELLEY COMPANY INC.
2139 W. MILL ROAD
MILWAUKEE 9, WISCONSIN

Circle 65 on Reader Service Card

PRODUCT NEWS

Belt Design Spreads Stresses

Here's a special power turn development for conveyors that will have wide application in mail, luggage, and packaged goods handling. The concept: all restraining idlers on curved



conveyors are placed along the belt's inside radius to avoid strain and tearing of products. Curve-Flo belt is inlaid with radial steel rods that keep the belt flat on the conveyor bed even at high speed. Thirty-two edge idlers spread the stresses evenly over the operating surface. Additional idlers train the belt on the return flight. Power is provided through an end pulley as in straight belt flights. Smooth and quiet operation is a main feature.

The Goodyear Tire & Rubber Co.

Circle **412** on Reader Service Card

Thrifty Hydraulic Lift

Transports loads from lower level to balcony or mezzanine. Services basements and street levels. Car trav-

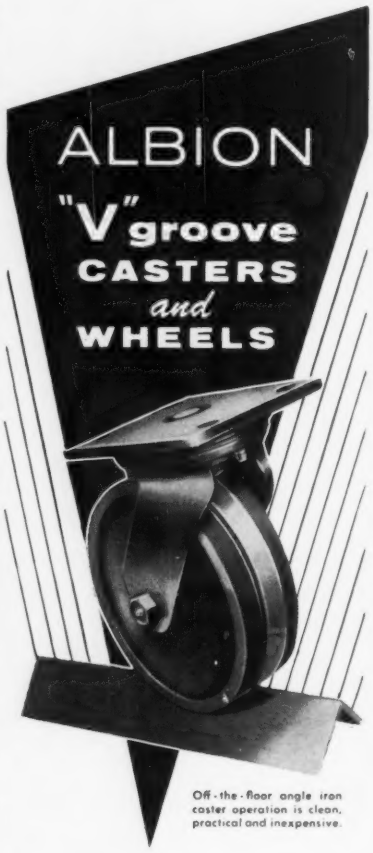
els in channel section inclined 6°. Electro-hydraulic, lifts 1,500 lb. 12 ft.

West Bend Equipment Corp.

Circle **413** on Reader Service Card

For more PRODUCT NEWS turn to page 106

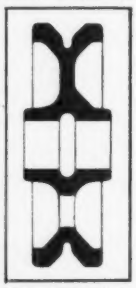
ALBION "V" groove CASTERS and WHEELS



Off-the-floor angle iron caster operation is clean, practical and inexpensive.

● Albion heavy duty V-groove casters offer greater utilization of floor space — easier, safer, more economical handling of heavy loads, protect flooring and speed production line operations.

Designed for use on inverted angle track — for *any* service requiring complete control of the truck or conveyor unit, Albion V-groove *self-cleaning* casters are also ideal for on-the-floor operation. And... only Albion offers a *complete* range of wheel sizes from 4", 5", 6", 8" and 10" diameters in full swivel or rigid models with a choice of wheel bearing types, capacities from 500 to 15,000 pounds and special features to suit your needs. Remember . . . specify Albion casters and wheels for guaranteed quality and economy.

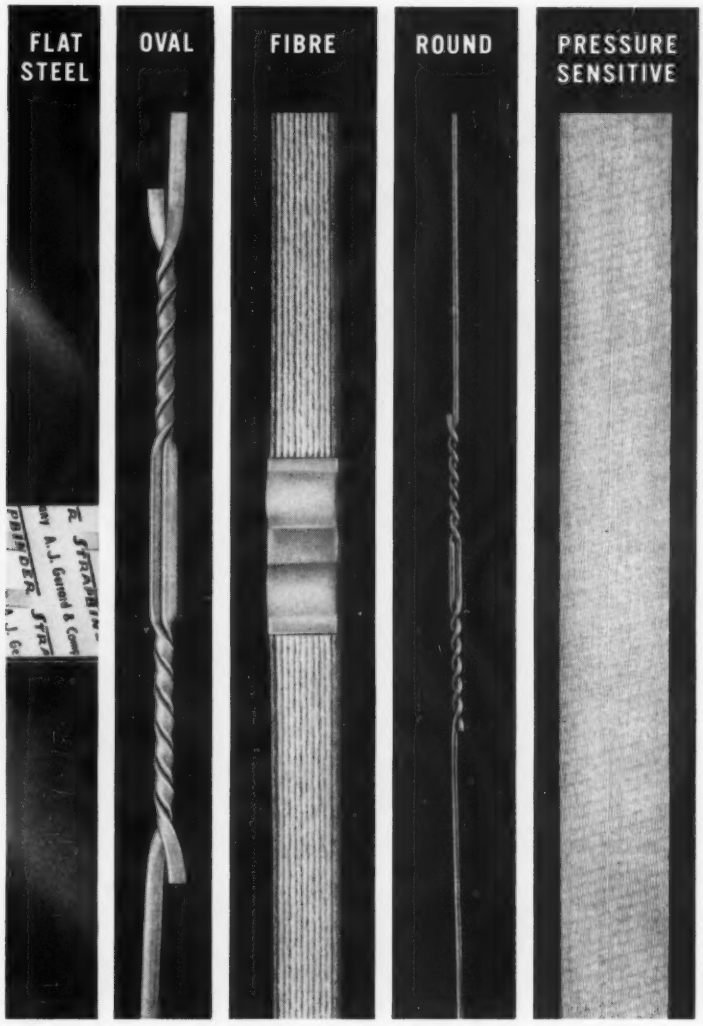


Typical cross section shows the broad V-groove and load equalizing relief groove.

Contact your nearest Albion representative or write direct

ALBION INDUSTRIES, INC.
ALBION, MICHIGAN

Circle 3 on Reader Service Card



THE RIGHT CHOICE

CAN SAVE YOU UP TO 60% ON STRAPPING COSTS!

There's a quick way to check your strapping costs . . . call an A. J. Gerrard and Company representative.

As a strapping science specialist, an A. J. Gerrard representative has factual data on costs for all *types* of strapping. He will make an impartial analysis of your practices because he can offer flat, oval, round or pressure sensitive strapping . . . in both metal and fibre types.

Savings of up to 60% on some strapping costs are not unusual. An A. J. Gerrard survey . . . at no obligation . . . could lead to a substantial reduction in your company's strapping costs, too.

For your strapping survey, just fill in the coupon below and mail, today.

A. J. GERRARD & COMPANY

402 EAST TOUHY AVE. • DES PLAINES, ILL.

A. J. GERRARD AND COMPANY
402 E. TOUHY AVENUE
DES PLAINES, ILLINOIS

Gentlemen:

At no cost or obligation to us, we'd like an A. J. Gerrard specialist to survey our strapping costs.

COMPANY_____

ADDRESS_____

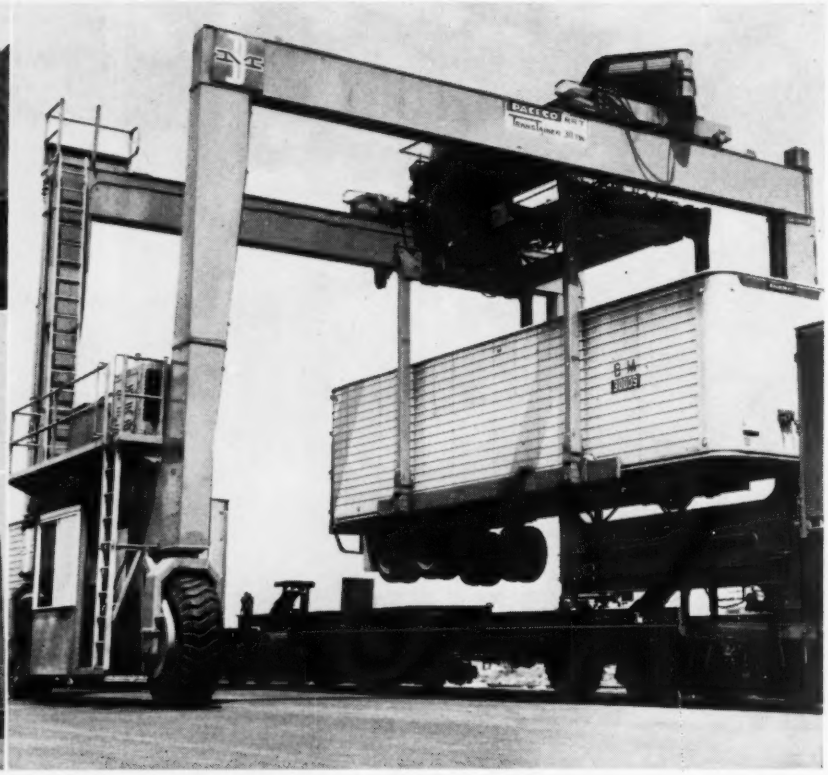
CITY_____ ZONE_____ STATE_____

NAME_____ TITLE_____

☐ Have your specialist call ☐ Write for appointment

Circle **50** on Reader Service Card

Photographed at Boston & Maine Railroad yard, the first railroad yard designed exclusively for piggyback handling—based upon PACECO TransTainer speed and dependability.



NOW THEY'RE BUYING PACECO TRANSTAINERS!

For Greater Profits, Step up to PACECO Quality

Railroads want and need better piggyback handling equipment—naturally they're looking to PACECO TransTainers for relief from costly maintenance and inefficiency. Maximum economies are assured by paying more for the extra quality built into PACECO TransTainers.

You, too, are entitled to more profit. Compare the money making features of the PACECO TransTainer with any competitive handling equipment you are now using. You'll find PACECO TransTainer superiority readily evident in every respect.

PACECO TransTainer advantages are not restricted to the railroad industry. Custom design versatility makes the PACECO TransTainer a money-making vehicle for handling missiles, pressure vessels, storage tanks, steel plate, lumber, boats, engines, tube bundles, heat exchanges and many other bulky items.

PACECO TransTainers are available in both electric and hydraulic models with broad choice of features, sizes and capacities. Send for brochure or contact PACECO sales office or representative nearest you.

PACIFIC COAST ENGINEERING COMPANY

PACECO

"TAILORS OF STEEL"®

Home Office:
P.O. Drawer "E", Alameda, California • LA 2-6100
Sales Office:
New York, New York • OX 7-1475
Representatives:
Houston, Texas • MO 4-3504
Mount Prospect, Illinois • CL 9-3060

PACECO ALSO SPECIALIZES IN THE CUSTOM DESIGN AND FABRICATION OF HEAVY EQUIPMENT FOR THE NUCLEAR, CHEMICAL, HYDROELECTRIC, MARINE AND GENERAL INDUSTRIES.

Circle 141 on Reader Service Card

Material Handling Engineering

OCTOBER 1961

Make the building fit material handling

By **A. T. WAIDELICH,** *Vice President for Engineering and Research, The Austin Company*

"We shape our dwellings,
and afterwards
our dwellings shape us."

WINSTON CHURCHILL

THE REAL GOAL of material handling is its elimination. And the most effective means of attaining that goal can be through building design.

We tend to lose sight of the importance of these axioms, and it's not hard to see why. Although material handling is a relatively young science, in its short history it has produced an impressive proliferation of systems, devices, and techniques. Were it not for a single basic law of production it would be easy for management to confuse this mechanical progress with real advances in the state of the art, most of which remain to be made.

The business law to which we refer is:

In manufacturing, as the cost of direct labor is reduced, the proportionate cost of indirect labor increases.

Only when viewed in the light of this law do material handling problems—and for most businesses material handling and material handling problems are synonymous—show up clearly as what they really are: economic rather than engineering problems. That is, we can usually move material safely, in volume, and on schedule, but the cost of moving it is out of line.

The implications of the law have come forcibly to the attention of management because of the great increase in the productive efficiency of machine tools and other manufacturing equipment. Modern technology has reduced direct labor costs sharply, but

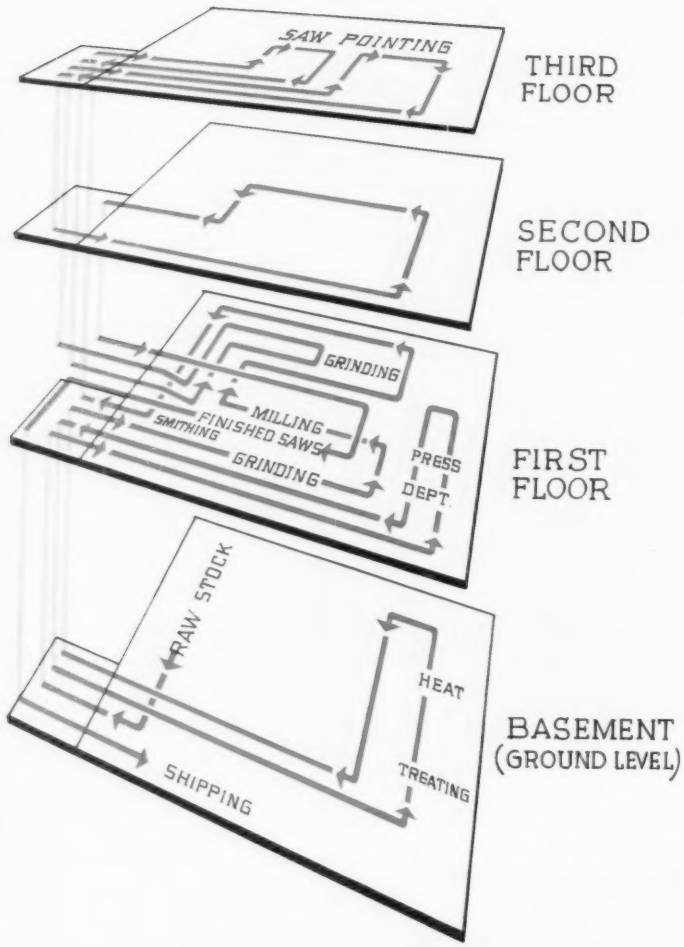


FIG. 1. The tortuous path of a circular saw produced in Simonds' old plant was 3,980 feet long, required repeated backtracking and transfer from floor to floor in the 4-story factory.

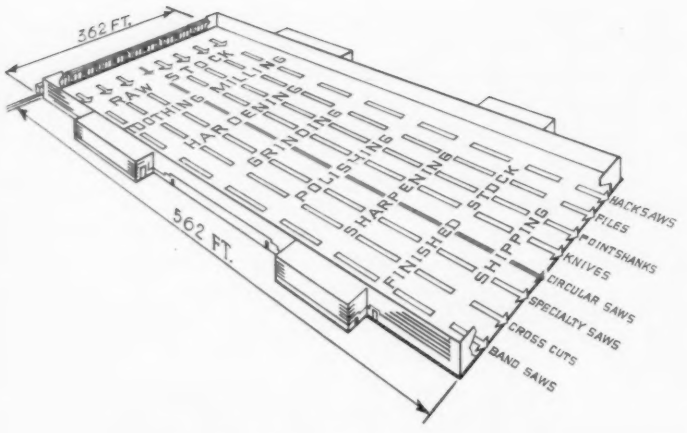


FIG. 2. In the new Simonds' plant, a circular saw moves only 1,050 feet in production, from receiving of raw stock to shipping of the finished saw.

unless each such reduction in direct labor cost is accompanied by improvement in material handling, indirect labor costs will rise.

Building design cuts MH. This makes it clear that few areas of management responsibility hold more promise for effecting cost reduction than material handling. What is not so apparent, however, is that maximum savings in material handling are achieved when material handling is eliminated, not just mechanized. And the most effective way to eliminate handling is by creating a plant or warehouse that reduces the necessity for handling.

The dazzling array of computers, electronic controls, and mechanical devices available for material handling systems may be blinding management from understanding that treatment of the symptoms of inefficiency does not necessarily cut away the causes. And the causes are generally inherent in the design of the building.

A study conducted several years ago by an industrial publication illustrates this point dramatically. They surveyed plants in the Bridgeport, Connecticut, area, an average industrial community. To the question "What are your handicaps in improving material handling in your plant?" two-thirds of the responses cited characteristics of the physical plant—multi-story construction, inadequate floor loading capacity, low clearances, column spacing too small, etc.

Importance of building design overlooked. Well, if building design is so much a determinant of material handling efficiency, why hasn't management insisted on more effectively designed plants? The answer lies in part with a failure to understand the role of the plant itself, and in part with a too narrow view of manufacturing processes.

Too often the building is conceived as a mere shelter from the elements rather than as a tool of production. In those cases where management views manufacturing operations as a totality, they see that building design makes all the difference in the world in the number and kind of production and handling problems that have to be solved.

Cost-cutting benefits. A classic example of the benefits that are derived when management takes the panoramic rather than a patchwork view of material handling is the case of Simonds Saw & Steel Company. The Simonds story dates almost to the inception of material handling engineering, yet it is as pertinent today as it was thirty years ago.

Simonds, a leading maker of saws, machine knives, files, and other cutting tools, had manufactured in three old plants located in Fitchburg, Massachusetts, and Chicago, Illinois. The three plants comprised a total of 17½ acres of manufacturing space.

By consolidating these facilities in one 5-acre plant in Fitchburg, The Austin Company was able to double Simonds' productive capacity and achieve these additional remarkable results with the world's first *controlled-conditions* plant:

- 1,703 machines required in the 3 old plants—reduced to 805 machines
- Elevators—reduced from 9 to 0

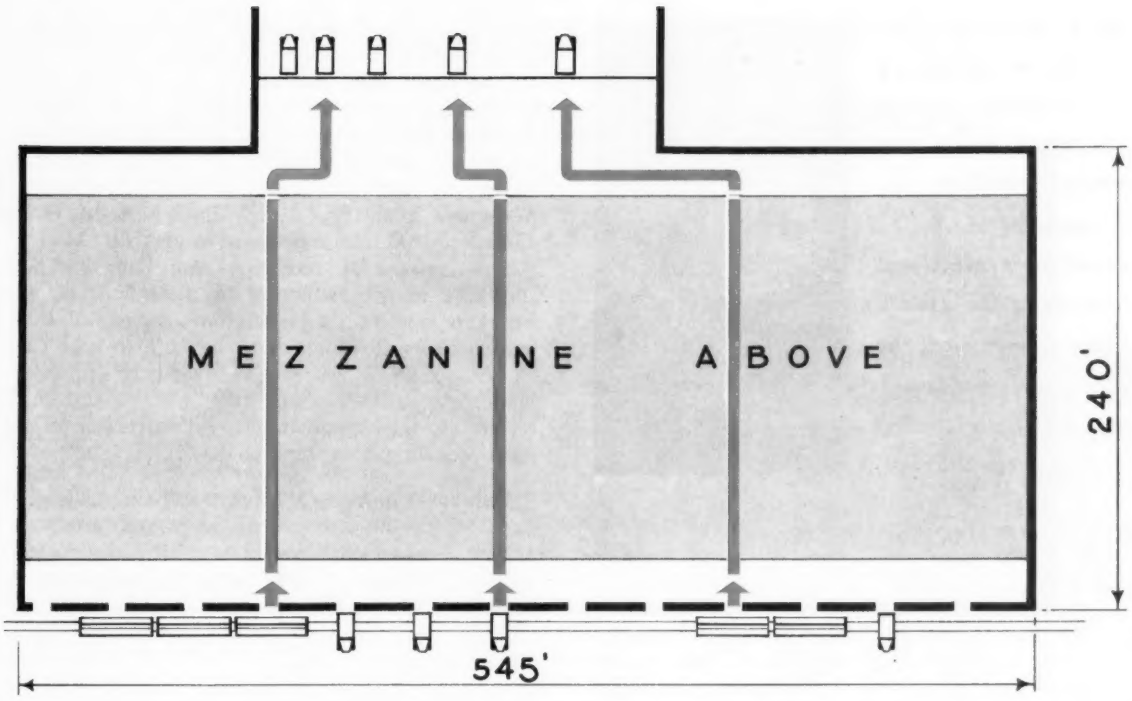


FIG. 3. Unique *entresol* (mezzanine) of the Lazarus warehouse cuts total material movement 50 percent. It extends from the long receiving dock to shipping dock, provides 2-level storage in 1-story building.

- Number of columns—reduced from an aggregate 3,752 in three old buildings to 56 in the new building
- Stairways—reduced from 18 in the old plants to 0
- Safety and working conditions—improved
- Production costs—lowered 20 percent or more
- Machine life—doubled or quadrupled
- Plant utilization time—doubled
- Supervision—virtually eliminated
- Fixed expenses—sharply reduced

Take the panoramic view! All these benefits were made possible because the problem of designing a new plant was approached from a broad, total-picture point of view. The first step was to analyze every operation. Then the function of every employee and piece of equipment was studied. By combining and coordinating the necessary operations and eliminating or reducing the unnecessary ones, Austin produced a straight-line production layout which not only was a marvel for production and handling efficiency, but produced the auxiliary benefits listed above.

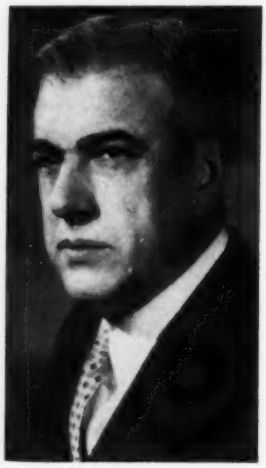
One phase of the Simonds picture graphically demonstrates the overwhelming impact of building design on overall operations. The tortuous path in Figure 1 traces the 3,980-ft. route a circular saw traveled through the production line in one of the old plants. In the new plant (Figure 2) such a saw moves only 1,050 feet.

By straightening the production line all the operations required to convert raw materials into finished products were placed in sequence. This eliminated the necessity for routing every item to a number of isolated departments from one to four times for various operations.*

Are warehouses different? So far we have discussed the way building design affects handling in production. But design has an equally profound influence on warehouse facilities. The problems differ, however. In manufacturing, material handling is at most only a necessary part of production. In warehousing, material handling is the *total* operation.

It is for this reason, perhaps, that proper design of manufacturing facilities is relatively easier to achieve than is proper warehouse design. In manufacturing, the processes guide the design, dictating the tempo and direction of movement. The warehouse, on the other hand, presents an open-ended problem; you have no process to guide you; there are few directional signals other than the need to protect the articles to be stored and moved. Here the objectives are to reduce handling to a minimum, and when that is accomplished to achieve what handling remains at minimum cost. Again, even though all operating costs in a warehouse are handling costs, including the cost of the building itself, it is possible to reduce those costs to the optimum through building design.

**Automation is not within the scope of this discussion. Tremendous strides in the automation of both production and warehousing are a certainty. But consideration of automation — as of mechanized handling — properly comes after both the operation and the building have been planned to minimize material movement and handling. It is obvious, for example, that the layout of Figure 2 permits the intelligent consideration of automated operations, whereas to consider automating or mechanizing a flow such as shown in Figure 1 would be totally unsound.*



***A. T. WAIDLICH** has led in engineering research on plant location, layout, and material handling . . . taught at M.I.T. . . . donated his professional services to the Atomic Energy Commission, the National Research Council, and many engineering organizations.*

How it was done. The example of the F. & R. Lazarus & Company warehouse offers us another classic case in point.

Lazarus, the leading department store in Columbus, Ohio, had warehouses in four different buildings scattered around the city. Like many other warehouses, the layout of Lazarus' facilities was determined mainly by such extraneous factors as limitations of lot size and the floorplans and structural features of available buildings and leaseholds.

The expense of warehousing bulk merchandise in buildings not specifically designed for this purpose was considerable. One lot of merchandise often had to be moved in order to get at another lot. Goods had to be hauled miles to get them from boxcars into storage, and from storage to customer delivery. Besides the time-consuming inconvenience of such movement, there was much damage to merchandise, because most of it was not designed for travel.

Lazarus was forced to improve the handling of its bulk merchandise for three main reasons:

1. Urban congestion was sharply increasing the cost of merchandise handling and delivery.
2. Profit margins were shrinking.
3. The opportunities for solving the problem through competitive pricing were decreasing.

Again, the panoramic view: To improve Lazarus' warehousing The Austin Company first made a study of the time, movement, and expenditure required to handle the various types of bulk merchandise received, stored, and delivered by the company. The study included a comparison of the various kinds of mechanical methods employed in handling goods. The movement patterns of the most economical handling methods determined the space allocations in the plan for a new warehouse. Thus, for the first time in the retail field, the total realities of handling various items of merchandise shaped a building plan.

The design for the new bulk service building not only reflected the exacting analysis of the various handling procedures, but a highly integrated pooling of merchandising and engineering know-how. The result was a simple layout. It featured horizontal one-direction flow, and the unique application of a double-edged *entresol* (mezzanine) which in essence is a huge pass-through shelf. This entresol permits goods to be received at one side and to be discharged on the other side, and at any point on these sides, for the full length of the building. (See Figure 3.) In effect this concept made a 2-level facility out of a basically one-story building, with the second level having the same unlimited access and unhampered movement as the first level. The use of this entresol, alone, reduced total movement of goods by half.

The system for receiving also contributes substantially to the reduction of movement of goods. Truckers and railroad switching crews are told by loudspeakers at which door they are to spot cars or trucks, so goods are received directly opposite the warehouse area in which they will be stored. This system virtually eliminates lateral movement of goods from receiving to storage in the warehouse.

Cut costs in half. The Lazarus bulk service building is a striking example of the savings that can be achieved when function governs the design of the building. Within a year after the warehouse was completed Lazarus could report:

- Payroll costs for receiving, checking, and reserved stock handling—cut 11 percent
- Payroll for delivery men—reduced 7 percent
- Inbound transportation charges for certain items—reductions ranging from 17 to 74 percent
- 30,000 square feet of floorspace in the main store (previously used for stockrooms and workrooms)—freed by consolidating space in the bulk service building. (A square foot of department store space is often estimated to be worth about $100 a year in sales.)

The Lazarus bulk service building is in effect a *throatless* warehouse. There are no restrictions to capacity or flow and no limitations on the effective use of additional manpower or equipment to handle seasonal rushes. This is in marked contrast to the conventional warehouse with its bottlenecking elevators and too small loading docks, its chutes and stairs and other throats that block efficient handling and severely limit capacity at periods of peak movement.

Approach to building design. The outstanding results achieved for Simonds and Lazarus would never have been possible had the problems been attacked with preconceived ideas as to the solutions. And they most certainly would not have been possible had management taken the patchwork view of the problem.

The lesson we learn from these examples is the importance of the panoramic view. The building, what takes place in it, and the material handling all have to be seen together as parts of a whole. In many cases this demands a painful reappraisal—at first painful to the pocketbook if it leads to abandonment of existing building for new facilities, but later bringing pleasurable sensations in the profit nerve when the new facilities are designed with built-in capabilities for the best handling. ♦

This is the first article in MHE's IN YOUR PLANT series. This series will tell you how to coordinate plant facilities with material handling. Future articles will deal with floors, doors, lighting, communications, and dock layout. Look for the next IN YOUR PLANT article in our December issue.

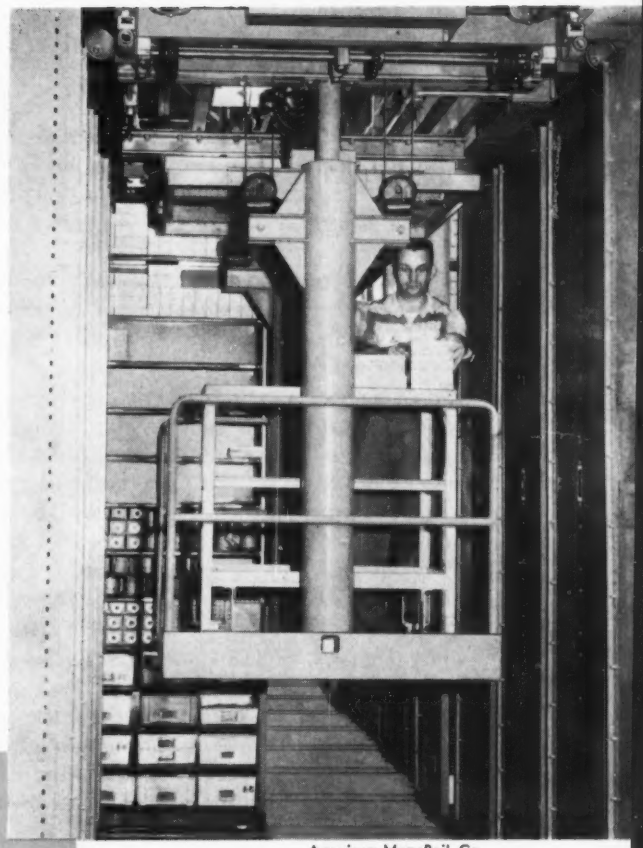
Everything moves in storage system

A COMBINATION of movable shelving and a mono-rail-crane-mounted work platform has resulted in a 50% saving in floor space for Western Electric Co. at their Allentown, Pa., works. The system was worked out jointly by engineers of both the shelving and the monorail suppliers.

The thing that makes this an unusual system is the fact that all parts of the system are completely mobile. Not only does the monorail-mounted work platform move, but so do all of the shelving units.

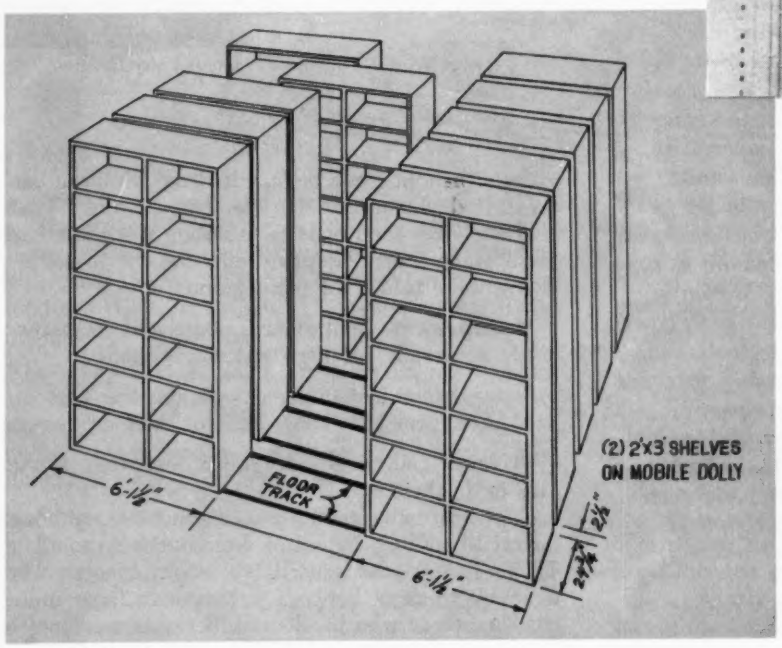
The shelving units serviced by the monorail platform are ten feet high. Each shelf is divided into two sections by a divider running from top to bottom. There are 14 spaces in each shelf unit. All of the shelving units have grooved wheel casters that ride double rails mounted flush to the floor. The shelving units can be snugged up tight against each other by exerting a force equal to one percent of the total weight of the unit. In other words, a push of only 10 lb. is all that's needed to move 1,000 lb. of shelving.

An aisle for the monorail platform can be made where needed by simply moving the shelving units aside. Collisions with shelving units are impossible. A photocell safety device on the monorail platform stops it three feet short of any shelf left in the aisle. Push-button control moves the platform slowly through the aisle so the operator can move the shelf out of the way. ♦



American MonoRail Co.

MONORAIL CARRIER moves through aisle made by moving shelf units aside. Vertical and horizontal movement of the carrier makes all of the shelves easy to reach.



MOBILE SHELVING UNITS move from side to side on casters riding on rails mounted flush to the floor. With this arrangement, aisles can be made where needed. This drawing shows only a segment of the total shelving at Western Electric.

Establishing work standards

Work standards can provide the same benefits for material handling as for production. They're just harder to apply. That's probably why many plants—is yours among them?—are only now awakening to the advantages of material handling work standards. They're discovering standards as a direct path to efficient management control and the attendant savings. Material handling work standards are more essential today than ever before because the allowable margin for handling error grows smaller all the time.

Some benefits standards can provide for your handling systems: Less manpower; a determination of group efficiency; advance estimates of daily manpower needs.

Other benefits: Your foremen will see that workers work efficiently by prescribed and established methods, know what the output of each worker or group should be, instruct workers in the best methods, find their workers are really productive because what they do can be measured.

Phil Carroll ("Timestudy Fundamentals for Foremen") calls a standard a base time allowance for a defined amount of work to be done to standard quality. He says only standard times can be compared.

You develop standards to measure performance. E. F. Mann ("Techniques of Plant Maintenance and Engineering") warns us not to confuse work measurement and time study. Work measurement, he says, determines the time needed to perform a task. It's probably the most reliable way to figure labor effectiveness and gives you an idea of supervisory effectiveness. Standardization, says Mann, should come before a work measurement program. As for time study, Mann calls it an aid to work measurement.

You use motion and time study to measure work and to set standards. Ralph M. Barnes ("Motion and Time Study") says they supplement each other, are used to analyze methods, materials, tools, and equipment. He says motion study usually precedes setting a time standard. Purposes of the pair: (1) Finding the cheapest way to do work (2) Standardizing methods, material, equipment (3) Accurately determining the time needed for a properly trained person at a normal pace to do a task (4) Helping to train the worker in a new method.

Standardized handling for management control

YOU'LL HAVE TO MEASURE if you want work controls. And this implies work standards. At Thompson Products Valve Division, Thompson Ramo Wooldridge Inc., they saw the need for engineered standards in nonproductive jobs, same as for production. The results were gratifying, a savings of 10 to 20 percent over previous methods.

That's the basic story from George Wassel, manager of industrial engineering. He says the Division has a complete standard schedule to cover that indirect labor which aids production. Wassel further says any material handling can be standardized. But you can't break it down into as fine elements as direct labor.

"All material handling can be standardized—to a point"

George Wassel, Thompson Products Valve Division

Wassel says good material handling work standards make wage incentive plans unnecessary while providing these things for these groups:

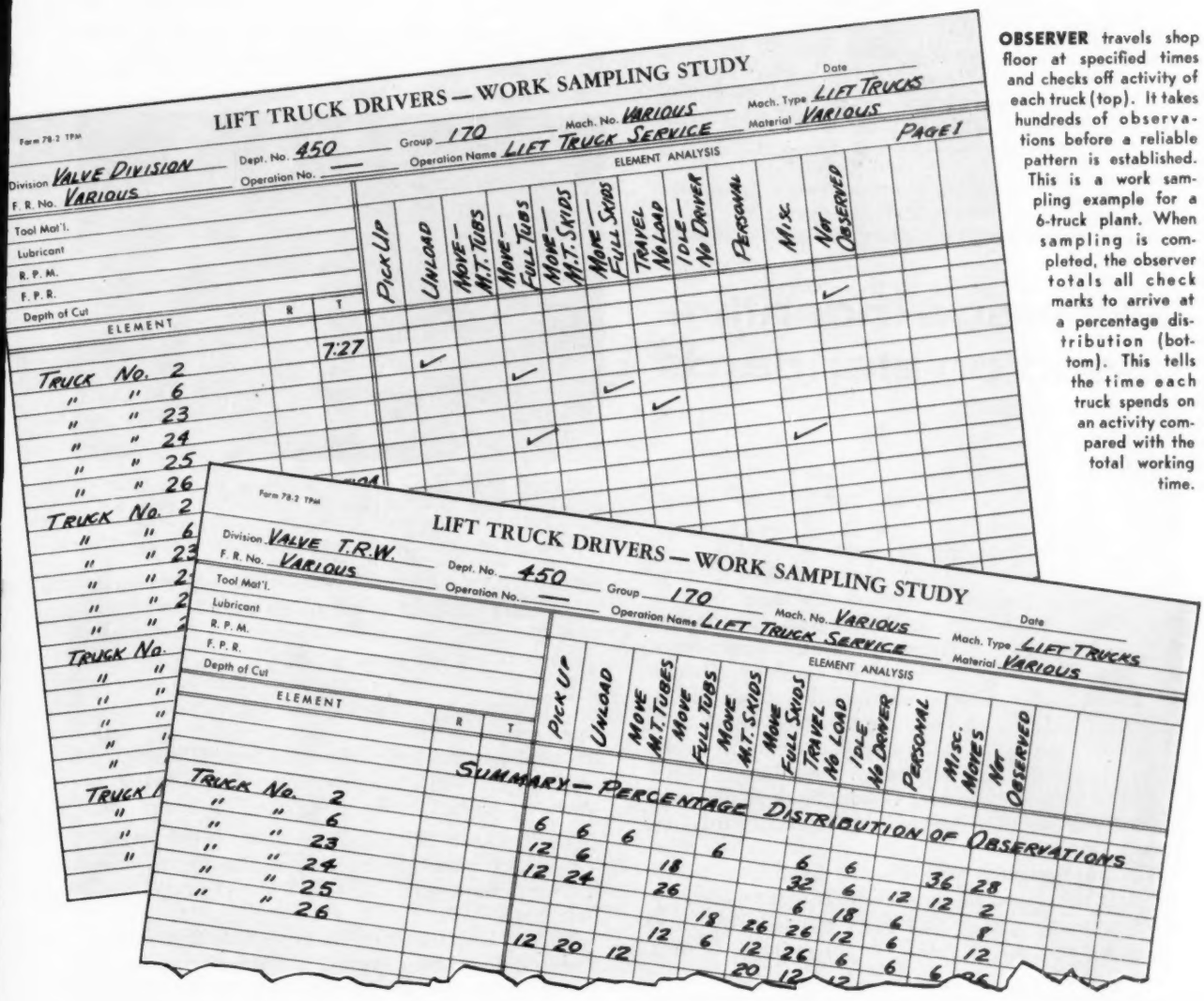
Management. Control costs. Determine manpower needs accurately for high and low periods.

Supervision. Determine if equipment is best utilized. Let them know how efficient their groups are.

Drivers. Tell them how much time they should take to do their jobs.

Conveyor movement between machines, although material handling, is part of direct labor standards at TRW. The standards we'll talk about concern work done by truckers between departments, also in-line truckers, those who hand truck between machines or

for material handling



LIFT TRUCK DRIVERS — WORK SAMPLING STUDY

Form 78-2 TPM — Date

Division VALVE DIVISION — Dept. No. 450 — Group 170 — Mach. No. VARIOUS — Mach. Type LIFT TRUCKS

F. R. No. VARIOUS — Operation No. — — Operation Name LIFT TRUCK SERVICE — Material VARIOUS

Tool Mat'l. — Lubricant — R. P. M. — F. P. R. — Depth of Cut — PAGE 1

ELEMENT ANALYSIS

ELEMENT	R	T	Pick Up	Unload	Move — M.T. Tubs	Move — Full Tubs	Move — M.T. Skids	Move Full Skids	Travel No Load	Idle — No Driver	Personal	Misc.	Not Observed
		7:27											
Truck No. 2				✓		✓			✓				
" " 6										✓			
" " 23													✓
" " 24													
" " 25													
" " 26													
Truck No. 2													
" " 6													
" " 23													
" " 24													
" " 25													
Truck No.													
"													
"													
"													
"													
Truck													
"													
"													
"													

LIFT TRUCK DRIVERS — WORK SAMPLING STUDY

Form 78-2 TPM — Date

Division VALVE T.R.W. — Dept. No. 450 — Group 170 — Mach. No. VARIOUS — Mach. Type LIFT TRUCKS

F. R. No. VARIOUS — Operation No. — — Operation Name LIFT TRUCK SERVICE — Material VARIOUS

Tool Mat'l. — Lubricant — R. P. M. — F. P. R. — Depth of Cut

ELEMENT ANALYSIS

ELEMENT	R	T	Pick Up	Unload	Move M.T. Tubes	Move Full Tubs	Move M.T. Skids	Move Full Skids	Travel No Load	Idle No Driver	Personal	Misc. Moves	Not Observed
SUMMARY — PERCENTAGE DISTRIBUTION OF OBSERVATIONS													
Truck No. 2			6	6	6				6	6		36	28
" " 6			12	6			6		32	6	12	12	2
" " 23			12	24		18			6	18	6		8
" " 24						26			26	12	6		12
" " 25							18	26	12	6	6	6	26
" " 26			12	20	12		6	12	26	6	6		
								20	12	12			

OBSERVER travels shop floor at specified times and checks off activity of each truck (top). It takes hundreds of observations before a reliable pattern is established. This is a work sampling example for a 6-truck plant. When sampling is completed, the observer totals all check marks to arrive at a percentage distribution (bottom). This tells the time each truck spends on an activity compared with the total working time.

who take products out of sequence, moving them to a different line or back to a previous machine. This division has 13 rider trucks, electric and gasoline, with capacities of 2,000 to 4,000 lb., plus dozens of hand trucks and carts. About 60 workers and drivers are involved.

What they did. To set up indirect labor standards, Wassel's group analyzed handling to define responsibilities, reviewed and analyzed work content, and, finally, recommended procedures, methods of handling, and some route changes.

The steps. First study was a work sampling to determine the ratio of idle to work time. At specified times during the day, the observer made a round of the plant, noted the activity of every truck at that moment (see chart). The observer was not concerned with how the drivers were handling (motion study) nor how much time a particular move took.

After several hundred observations over several weeks there were enough figures to give a reliable ratio of running loaded to running empty.

Next came the detail, through time study. An observer with a watch followed a trucker all day, first telling the driver and his department that a study was to be made.

The observer was trained to judge whether the driver was moving slower or faster than the average and to adjust for it (leveling factor). For example, if the driver was working at high speed to make a good impression, the observer might put down 1.2 minutes for a job that actually took 1 minute. Or, if the driver moved slowly to influence the results, the observer might mark 0.8 minutes for a job that took 1 minute.

After averaging the time for workers in all moves, Wassel developed a standard average time for each move. This went on a standards form, was approved by Wassel's department and by driver supervision.

The controls. Wassel determines performance efficiency by comparing the actual time taken with the standard times allowed for that number of trips. Each load to be moved has attached a material handling move ticket, a rectangle with a red border. When a trucker with an empty truck sees it, he picks up the load and delivers it. Then he pulls off the ticket, turns it in with all others he collected during the day—as his record.

Unit wage incentive based on standards

TWO THINGS may impress you when you first see a good material handling system operating under wage incentives:

1. The high percentage of trucks with loads.
2. The no-nonsense attitude of drivers as they wheel their vehicles about at top permissible speed.

You'll see this at the B. F. Goodrich Co., Akron. Paul W. Watt, superintendent of Factory Service, says the wage incentives are based on carefully charted standards. Each trip or move has a value on which the driver is paid. A chart lists the standard moves and rates but the drivers, after a while, memorize many of them. This is surprising when you discover there are some 5,000 standards for Goodrich's three plants in central Akron, all connected by tunnels, yards, or ramps.

The trip standards were all established from standard data developed by time study. It is not necessary to restudy any changes in factory layout to keep the trip standards up to date. For an example of trip values between buildings, see chart on this page.

Goodrich pays only for loaded trips. Thus, drivers just about have to pick up return loads to develop high unit hours.

To help keep trucks on the move, Goodrich designed a central dispatching system. Three field stations were set up at the most frequently passed points. A department that wants truck service phones a central station. Dispatching operators then relay the request by Telautograph to one of the three field stations. The foreman puts the first available truck on the job.

The paperwork. The foreman makes out move orders in triplicate. The original remains at the station as proof that it was written. The other two go with the load. The trucker writes his payroll number and tractor number on one of them, turns it in to the timekeeper department at the end of the day. Transportation costs are charged to the division that asks for movement.

Once the standard is accepted, it becomes part of Goodrich policy. The union can negotiate a new standard, according to Watt. He says the system is quite popular with drivers.

BUILDING

18	17½	17	11	10	9	8½	8	7	6B	6A	5	4	3	2	1X	1	1½	
																2		1½
															2	2.5		1X
														2	3.5	2.5		2
													2	3.5	5	5		3
												2	9	5	4	5		4
											2	9.5	8	5.5	6.5	6		5
										2	6	9.5	5.5	6.5	8	7.5		6A
									2	4.5	5.5	6	5	5.5	7	6.5		6B
								2	4	4.5	5	5	4	5	6	5.5		7
							2	3.5	5	5.5	4	6	4.5	3	5	4.5		8
						2	3	7	5.5	6	6	14	6	3.5	5	4		8½
					2	8	6	7.5	7.5	8.5	7.5	4	5.5	4	2.5	11.5		9
				2	7.5	6	7	8	7	7.5	5	9	9	6.5	6	5.5		10
			2	4	6	4	5	6	5.5	5.5	4	9	8	6	5	5.5		11
		2	3	4	6	4.5	6.5	6	7	7.5	8	9	7	5	5	4		17
	2	3.5	2.5	4	6.5	4	6.5	5.5	6	6.5	5	8.5	7.5	6	5.5	5		17½
2	8	9.5	8	9.5	13	9	9.5	6.5	6	5.5	8	9.5	9	10	11	10.5		18
7.5	6.5	7.5	6	6	11.5	8	7.5	8.5	10.5	7	5.5	13.5	8.5	8.5	10	9.5		19
8.5	6.5	9.5	8.5	7.5	12	9	8	8	8	8	6.5	10	10	10.5	11	10.5		20
8	6	8.5	7	6	10.5	7.5	7	6.5	7	7	5.5	9	9.5	9.5	10	9.5		20½
7.5	5.5	8	7	6	10	7	6.5	6	7	7	5	9.5	8	9	10	9		21
8.5	7	8	6	6	10	7	7	6.5	7	7.5	5	9	8	9	9	9		22
11.5	6	7.5	6	6	9.5	7.5	6	10	9	10	4	11	9	7	9	8.5		23
11	5	6.5	6	5.5	9.5	7.5	7.5	9	9.5	9.5	6	11.5	10	8.5	9.5	9		24
10.5	6	7	6	5.5	9.5	7.5	8	9	10	10	6	12	10.5	9	10	9.5		25
12.5	8.5	10	8.5	9	12.5	9	9.5	11	11.5	11.5	7.5	14.5	13	11	12	11.5		26
19	6.5	8.5	8	7.5	11.5	9	8	10	11	11	6.5	13.5	12	10	11	10.5		27

BUILDING

FORK TRUCK movement between Goodrich buildings is on standards called units, the basis of the firm's wage incentive program.

The tags can be used to determine manpower requirements. For example, if there are 50 tags scattered around the plant on various loads, and the standard move takes 5 minutes, management knows it will need manpower to handle 250 minutes' worth of work.

The in-line hand truckers don't collect tags. They just move material. But it's easier to supervise them because they move shorter distances in one area.

LOOKING OVER a fork truck undercarriage are Paul W. Watt (right) and Paul Bentz, manager of transportation, Akron plants.

> *"Our basic material movement plan—written orders and standard charts"*
>
> *P. W. Watt, The B. F. Goodrich Co.*

A consultant views handling standards

MAJOR VALUE of work standards, says Management Consultant M. K. Sheppard, is a comparison of handling methods to find the most economical, to determine manpower, to control efficiency and cost. Material handling is indirect labor, breaks down for standards purposes into:

- Lift truck and conveyor stations (difficult to standardize).
- Between machines (easier to measure and budget).

Sheppard starts to set standards at any or all of these points:

1. In that part of the operation best suited to analysis by time study.
2. Where he can measure the output.
3. Where he can get a good record of the amount of time each worker spends on his job.

Then he goes into time study. Pure material handling, says Sheppard, is hard to measure. On the other hand, many companies place standards on some handling operations, particularly those that are repetitive.

Recognize the difficulties. Measuring material handling often takes a great deal of detail in gathering and applying information. Sometimes the results may not be worth it. Whether it is or not becomes a decision for the individual plant.

In production, for example, it's easy to measure the output of a man on a milling machine or punch press. Setting a standard offers little difficulty because his job is simple and repetitive.

But material handling is unpredictable. A crane in a steel plant may be able to make 20 lifts an hour. This probably can't become a reliable standard because it will vary greatly, depending on the amount and weight of material and distance moved. You can detail this operation. But whether you can develop a useful standard, and whether it's worth the effort, is something you must decide.

Same for a job shop where, ordinarily, there's little recognizable flow pattern, little consistency in operation. Handling here is difficult to measure.

Despite the obvious drawbacks, handling standards can be applied—probably on more jobs than you might suspect. Take the end of an appliance conveyor line. Measure the packaging and route into the trailer. Work up the fixed distances, package sizes, number per truck, number picked up, shipped, how placed in the trailer, and so on. Figure the number of manhours spent on each operation. Do this and you will develop standards for the time this should take.

The incentives. Work standards often serve as the basis for incentive pay systems. You may or may not like incentives. Consultant Sheppard doesn't. He says they have outlived their usefulness. They make standards a topic of labor bargaining when they should remain a management prerogative.

Sheppard tells about a firm where he put in a program of controlled day rate pay, with job-evaluated hourly rates, engineered work standards, daily labor performance reports, and supervisory training in management controls. He also knocked out wage incentives. Result: the plant produces as much as ever with one-third fewer manhours. Relations with the 1,200 hourly-paid workers continue excellent.

An example from another plant where Sheppard helped establish engineered standards and did away with wage incentives. The chief industrial engineer wrote this:

". . . The effort to increase production and reduce cost through good management controls (work standards) and personnel relations is more profitable than any effort spent on the administration of an incentive system.

"Now, this may well be peculiar to our operations and may not apply to others. But I firmly believe that a well-organized plan of controlling operations should precede the introduction of monetary incentives; otherwise, the incentive may prove a hindrance rather than an aid to efficient operations and good labor relations."

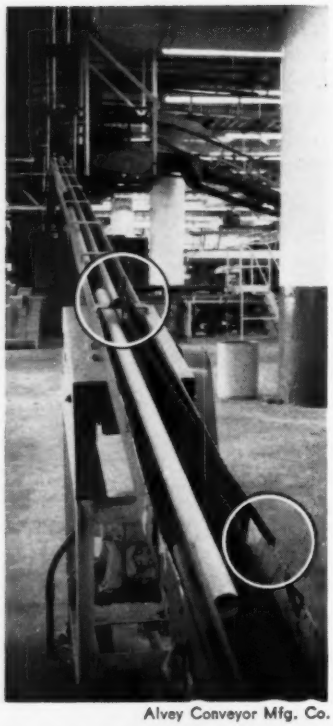
"Standards should not be negotiable. They're facts to be determined by careful analysis"

M. K. Sheppard, management consultant

Keep an open mind. You may be surprised at the savings available when you measure indirect labor, set up standards, and use them for daily labor control. Some tips: observe and analyze your handling before establishing standards. Get rid of obvious poor practices. Then start measuring the output. Don't wait for a perfect handling system. Remember, it takes more time to get the facts from an indirect labor operation, like handling, than from direct labor.

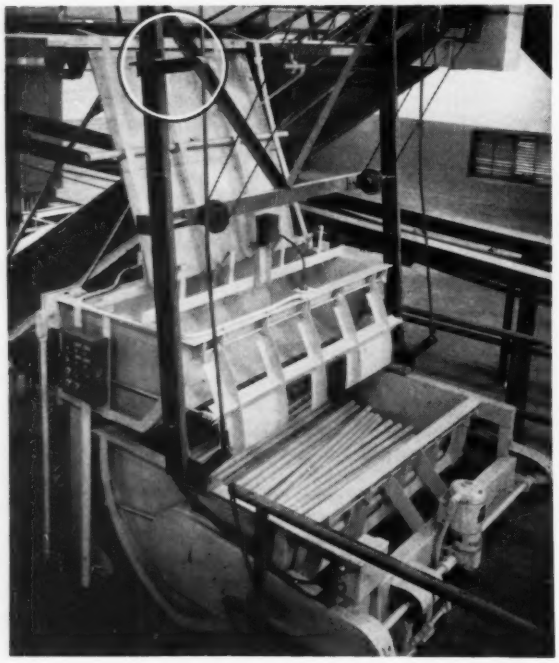
Be openminded when dealing with standards for material handling. Deal with each job separately because of the great variance. Don't be impatient. It can take months or years to establish standards in material handling. You'll find, however, that it will eliminate differences of opinion on output among observers and foremen. Standards are sound and consistent ways to determine a fair work load. ♦

Merging products get automatic



MANUAL DIVERTER in photo on right is indicated by lower circle. Diverter is just above the point where tubes are received from the tube forming machinery. The other circled area indicates points beyond diverter where the double lane portion of the tube system begins. Circled area in bottom photo shows the drop off point where tubes are diverted into the last of two tube hoppers.

Alvey Conveyor Mfg. Co.



CONTROL DEVICES called "Traffic Cops" maintain orderly flow of cartons, prevent traffic jams in a conveyor system at the Scott Paper Tissue Mill and Finishing Plant, Mobile, Ala. The traffic cops automatically give the right of way to one package, halt others, until the point at which two lines of conveyor meet is clear.

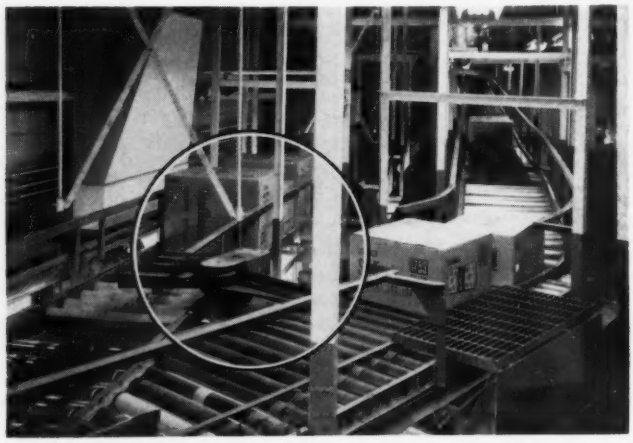
The material handling system at Scotts is a fine example of an engineered integrated conveyor system in the paper industry. The system can handle 18,000 cases of 36 brands every 24 hours.

There are three conveyor systems for each battery of tissue roll winding machines. Each battery of winders has its own conveyors, wrappers, and packagers. They all have spurs to carry the cartons to a common conveyor that leads to the warehouse.

Belt conveyors handle the tubes from the core winders to the tube bins. The tubes come in various lengths.

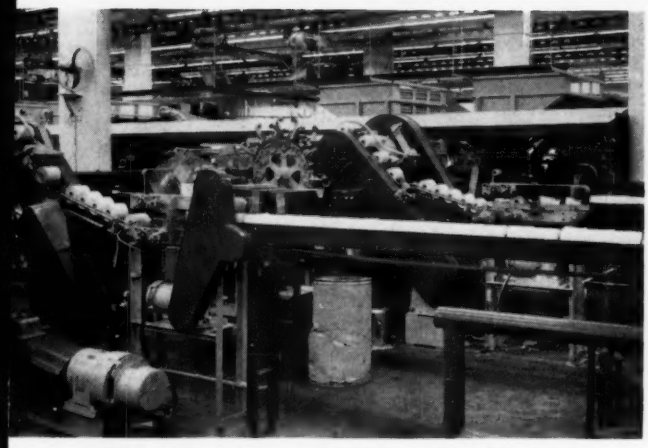
Another system carries rolls of tissue from the continuous tissue winders to wrappers. There are 10 winders that dispatch products to wrapping stations over the conveyor system. Some winders produce 40 to 80 rolls per minute, 100 rolls per case, depending on sheet count per roll.

Two packing methods. Tissue roll conveyors carry unwrapped rolls of tissue from continuous winders to wrappers with tube cores in horizontal position parallel to the center line of conveyors. Materials wrapped by one group of wrappers go to automatic

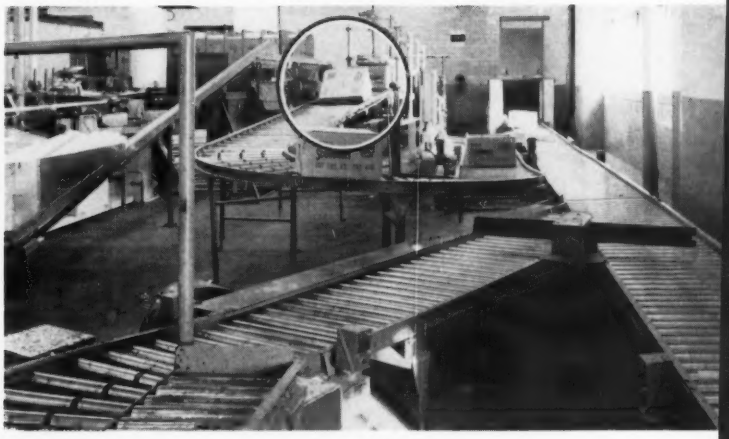


TRAFFIC COP (circled) allows only one line of cartons to pass. Control device holds up the other line of products until there's a break in flow of the first line. Products merge into single line.

right-of-way

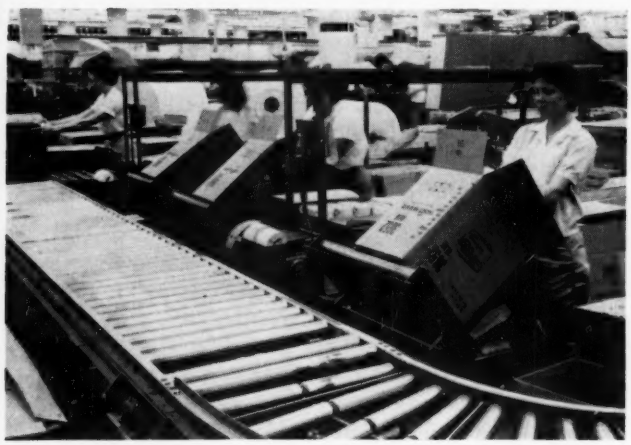


UNWRAPPED TISSUE travels single file to automatic wrapping machinery. Special device turns the rolls so they enter wrapping equipment with tubes crosswise.



CARTONS emerge from sealing machinery with name upside down. Circled area indicates the point where special arrangement in the conveyor system turns them. Note traffic control device.

hydraulic packing machines. From another group of wrappers, they're conveyed to hand packing stations. The rolls of tissue that feed to the automatic packing machines move to those stations with tube cores horizontal and parallel to the center line of conveyors. Special devices in the conveyor system turn rolls that move to the manual packing stations. The cores are in vertical position as they feed into these packing stations.



SCOTT PRODUCTS are packed in shipping cartons at several stations along the conveyor system. Packing stands are conveyor sections that remain tilted when carton is being filled.

No excessive pressure on the rolls. The conveyors bring the product into good view of the inspectors at inspection stations located along the route. Mechanical arrangements in the conveyors prevent pressure from rolls of tissue against others in case of a block. The roll shape stays uniform as it moves from winders to wrappers to packing.

Another system of conveyors handles cases of tissue from packing stations through sealing equipment, and on to the warehouse and shipping building. Cases travel from the packers to the sealers upright. Top flaps are open, and bottom flaps closed but not sealed. As they leave the sealers, they pass over a case stamper mounted into a specially designed section of the conveyor.

Final routing. After cases leave the sealing equipment, they go through another conveyor section, arranged so that most of the cases dump lengthwise onto a gravity roller conveyor section. They continue on until they reach a case stop device. This positions the cases so that they dump onto the next conveyor section on their width surface. This section of conveyors begins the network of live roller conveyors that service the warehouse.

The conveyor system transports products to the shipping department. The shipping docks accommodate six 40-foot railroad cars. Another shipping dock has facilities for loading six over-the-road trailers. Workers can stack 16 feet high in the 40,000 sq. ft. warehouse. ♦

PROJECT Upgrade

Eighth article in the Project Upgrade series tells how advanced management wants men who can implement new concepts of the theory and control of material flow.

Management's ideal manager of material flow

By **E. RALPH SIMS, JR.**, *Consulting Management Engineer*

DURING THE PAST MONTHS we have discussed many aspects of the material flow problem and your relation to it. We have gazed into our crystal ball and seen you as manager of material flow, mirroring this job from your point of view—from the material handling point of view.

But this bright future cannot become reality unless we are ultra-realistic in our optimism. The bedrock of realism for any employee is understanding what the boss wants. So it is time to look at our rosy dreams through the steely eyes of top management.

What bosses are thinking. First, there is the change in management's concept of the material-control function. Only recently has management recognized material flow as something essential occurring in integrated systems. The older view, still prevalent in many quarters, is that material handling is a sort of subordinate engineering function related to special equipment—you might compare it to heating and ventilation. Who ever heard of a *manager of ventilation*? That's a function you leave to individual plant managers, on a decentralized basis, with occasional help from a specialized engineer, and even a file clerk is permitted to turn up a thermostat.

The old view of material handling is much the same. At best management supplied a material handling engineer as an advisor and trouble-shooter, but others made the major decisions affecting material flow. Plant and warehouse managers had much to say about location of stocks. The purchasing department, financial officer, and sales manager shared policy control over inventory levels. The traffic department wrote the rules about transport. The packaging engineer, sales manager, and even advertising manager, might decide on packaging, with a claims manager sitting in to say "Nyet!" at intervals. The material handling engineer carried out the wishes of these people, or resolved the conflicts between them. Management was reasonably satisfied because this type of organization got results considered satisfactory at the time, and on a chart you could show that all responsibilities for movement of materials were delegated.

Revolutionary idea. Today a new idea is changing this attitude toward material handling, an idea we have stated repeatedly: *Material handling does not create, change, or improve the product; it merely adds cost!*

The implications of this idea have a magnitude difficult to grasp. At a conservative estimate, 50% of the cost of all tangible goods we produce is cost due to material handling activities—transport, warehousing, carry inventory, packaging for protection, and incident insurance, interest, and taxes. This means that material handling costs us $150 billion when the gross national product is, as now, $500 billion. Also, on the basis of experience, we can hope to cut the cost of material handling in half—in many individual cases the savings are much more drastic. An example is one important phase of warehousing, where analysts predict that direct labor will be reduced 95 percent in the next decade. An overall saving for our nation of $75 billion is therefore not an impossible goal.

Such savings would reduce the costs, increase the profits, of every major industry and company. This is why progressive management has seized this idea, even though it forces them to take a new look at organization charts and the way material handling responsibilities are delegated on them.

this PAYLOADER® removes

alum "ice" rink in minutes

American Cyanimid Company, Industrial Chemicals Division manufactures commercial alum at its Chattanooga plant. The alum in liquid state is poured to a depth of 2 inches into large "pans" where it cools and solidifies.

Here the PAYLOADER tractor-shovel enters the scene — first driving over the surface to crack it — then scooping up bucketfuls of the alum slabs and carrying and dumping them into a chute that leads to the crusher. PAYLOADER units in other plants perform the same efficient "harvesting" operation on pitch, creosote and similar chemicals.

This is only one example of the many kinds of bulk-material handling jobs that versatile, flexible PAYLOADER units can and are doing at substantial savings in time and man hours. This model HA, the smallest of the PAYLOADER line, is also only one of 8 sizes and 20 models (from 2,000 to 12,000 lb. operating capacity) that are available. Jobs range from the unloading of bulk from box cars, to the loading of gondola cars in a matter of minutes.

Your Hough Distributor is ready to help you apply PAYLOADER methods to the solution of your bulk-handling problems. He also has the service, personnel and parts facilities to back up your PAYLOADER investment.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO. 10-A-3
731 Sunnyside Ave., Libertyville, Ill.

Send "Industrial Materials Handling from A to Z."

Name _____

Title _____

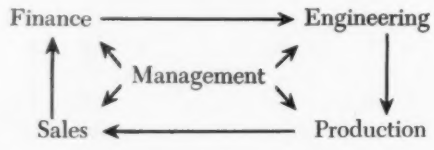
Company _____

Street _____

City _____ State _____

Circle 56 on Reader Service Card

The old hats. The old basic organization plan, which you and I have learned through experience or schooling, can be charted like this:



This was once a good guide to delegation of responsibilities. It doesn't work with the new concept of material control, because material handling and material flow cut across all the departmental lines this chart produces. If you are going to eliminate handling, you start with your raw material, consider its transport, its packaging or containerization, and go through every phase of storage, product design, processing, assembly, packaging, warehousing, and delivery. You have to eliminate unneeded stocks. You should try to receive parts in a container you will later use to ship the completed product. You have to schedule so you reduce the need for inventory. You want to design the product and its parts so they can be handled automatically. You should dimension the product and its package on modules that multiply into unit loads, permit containerization of shipments, and that waste no space in trucks, railcars, or your warehouse. You have to take into account your markets and their trends. You employ new, faster means of communication.

These are new goals, and the old organization is no help to management that wants to attain them. You can try to work by committee. On it you put the product designer, the chief engineer, your material handling, packaging, and industrial engineers, your plant superintendent, the warehouse manager, the controller, the marketing director, sales manager, and advertising manager, the traffic manager, and the purchasing agent. Who is chairman? It will have to be the president or executive vice president, because nobody at a lower level will be able to handle this collection of prima donnas. And this chairman will have involved himself in a new, major job, at the expense of time he needs for other duties.

A new hat, new head. As an alternative I propose a different concept of business functions, one that is *in harmony with organization charts of companies which have already established one executive as the man responsible for material flow:*

Creation:

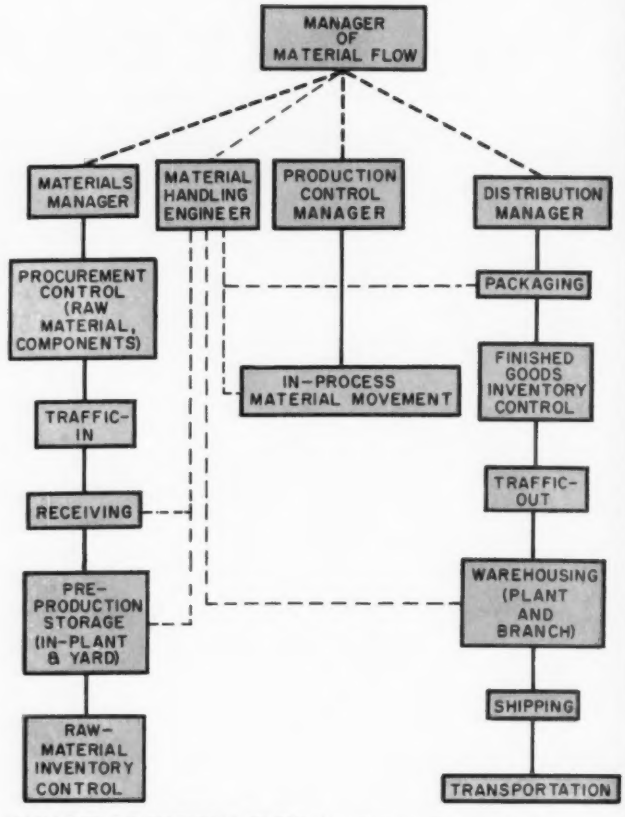
The salesman creates demand
The designer creates product
The plant and industrial engineers create facility

Fabrication:

Conversion of raw material to product material
Conversion of product material to parts
Assembly of parts to product

Control:

General management
Financial control



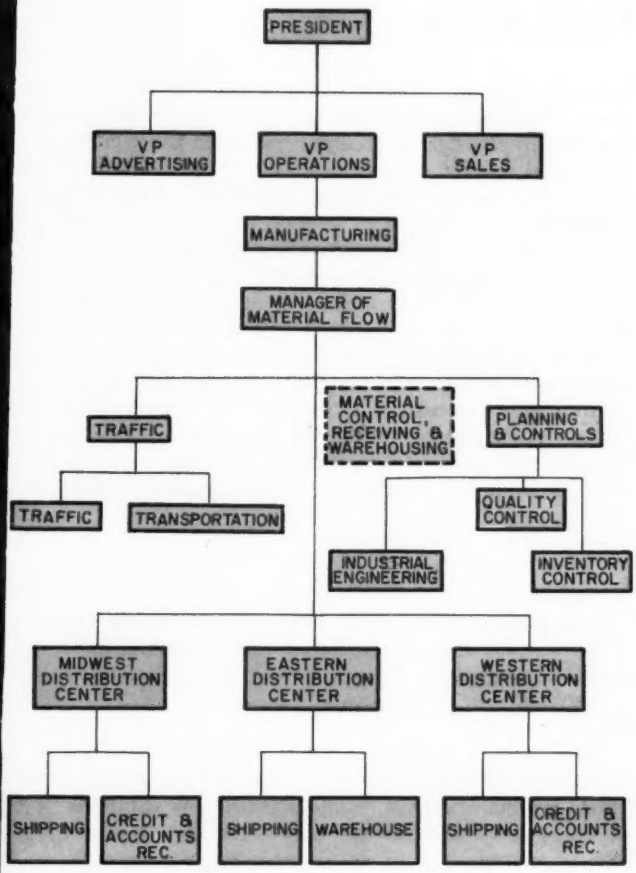
MANAGER OF MATERIAL FLOW, his place in the organization. (MATERIAL HANDLING ENGINEERING, December 1960.)

Marketing control
Production control
Material control, including inventory and material handling

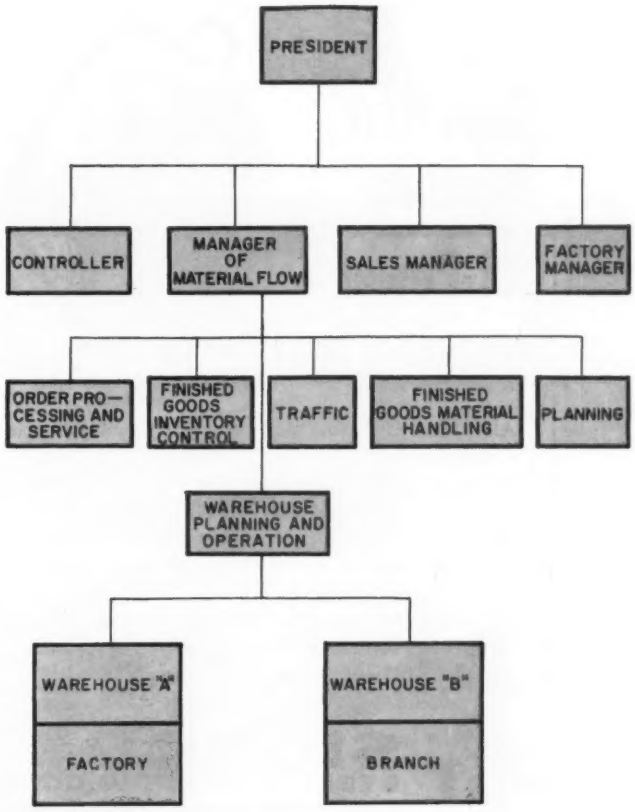
This is logical. It gives you a bracket where you can put a material control manager on a par with control of finance, marketing, and production. You can see where a man fits, if he is to be responsible to top management and at the same time cloaked with enough authority to be "Manager of Material Flow."

Man of the hour. What kind of man will top management select for this job? He will be more than a technically competent material handling engineer. In fact, he will subordinate his *technical* interest in material handling. He must adopt our view that we would like to be smart enough to achieve transmutation of matter—to telephone material from mine to factory, from factory to home of the user. If we could do this—fortunately for us we can't—we would eliminate the whole material handling engineering profession, the material handling industry. Everything we do, everything we expend our efforts on as material handling men is basically useless!

Advanced management wants men who can approach material flow problems on the basis of this



ORGANIZATIONAL CHART of a large corporation making a transition towards material flow management.*



ORGANIZATIONAL CHART of a company which solved managerial problems by adopting the material flow concept.

assumption that material handling operations have no value. They want men who are broad in outlook and able to be hypercritical in analyzing material handling activities. This means questioning the very existence of need for a handling operation, before considering a methods improvement within the operation. There is no point to improving an operation we can do without.

Using the systems approach. The next requisite is best explained in terms of *systems approach*. For material handling we have defined this as:

> **The consideration of material handling, plant layout, and packaging problems as parts of the total system of moving material, product, paper, and equipment from source to consumer, into, through, and out of the manufacturing and distribution system.**

This approach enables the manager of material control to understand the functions of executives controlling finance, marketing, and production. It reveals in correct perspective the relations of supplier, in-bound transport, receiving, raw material and supply storage, in-plant handling, in-process inventory, finished goods inventory, packaging, shipping, traffic management, and marketing to the business' operation.

The manager of material flow must understand these relations as they affect the physical facilities, the financial position, and the management policies of the company. He must foresee the internal reactions which will occur when any of these functions is changed. The systems approach helps him do this.

Add the no-value idea. Then, by applying the no-value concept to the systems approach, it is possible to see where major reductions in operating cost and dollar lock-up can be made, by eliminating whole steps in the system.

Many examples of the effect of this approach can be found in the current distribution revolution. Field, jobber, and distributor warehouses are becoming obsolete for many mass-produced industrial supply and consumer items. Direct shipments from factory to customers or retailers eliminate the warehousing.

The supermarket is a common example. In effect it is a field warehouse where the consumer does his own order-picking. It eliminates documentation, because they price the order direct from the assembled merchandise, instead of writing an order and pricing before filling the order.

In the raw material field you find another kind of example. Molten aluminum is transferred direct from

*Adapted from P. F. Cannon, "Organizing for Effective Physical Distribution Management," AMA Management Report No. 49, "Management of the Physical Distribution Function."

Circle 113 on Reader Service Card

Fast New Signode All-Power Strapping Tool

AMP SERIES

Air power tensions, seals, and severs the strap • Extremely simple 3-step operation • Compact, balanced design; easy to use on small and large surfaces • Durable steel base • Weighs only 22 lbs. • Universal suspension bracket allows for strapping on top or side of package • Uses easy-loading Signode NESTACK seals that reduce waste and delay • Models for ⅝", ¾" strapping, .015" to .035" gauge • Tension adjustable to 1200 lbs. at 90 p.s.i., regular models. For additional information, write:

SIGNODE
STEEL STRAPPING CO.
2612 N. Western Avenue, Chicago 47, Illinois
In Canada: Canadian Steel Strapping Co., Ltd.

D&M CANVAS CAB ENCLOSURES

RETAIN FULL PRODUCTION IN ANY WEATHER OF YOUR
FORK LIFT TRUCKS, TOW TRACTORS AND BULLDOZERS
NOW AT REMARKABLE LOW COST

• QUALITY CONSTRUCTION
Heavy army duck canvas which is waterproof and mildew-proof. Can be rolled up in mild weather.

• VISIBILITY & SAFETY
Clear vision assured by windshield and left, right, rear and roof panels of unbreakable glass. Screen insert in rear checks carbon monoxide. We can also furnish this with safety glass windshield and electric windshield wiper on request.

• EASY TO GET IN AND OUT
2-way zipper can be opened from inside or outside. Will not rust, freeze or corrode.

WHEN ORDERING
When ordering give make, model, capacity and specify whether machine has factory guard or LP gas tank.

FRAMEWORK
Framework custom made for you if your machine is not equipped with factory guard.

D&M TRUCK TOP COMPANY
Phone WE 3-1613
12186 PETOSKEY AVE., DETROIT 4, MICHIGAN

Circle 30 on Reader Service Card

the reduction pots to engine foundries. Tin can factories are set up next door to food packing plants. Oxygen suppliers build their generators on the premises of steel mills.

This approach also helps you eliminate cost directly attributable to imbalance between operations, excessive inventory banks, and multiple handling. View the business operation as a system and your inventories as dependent variables which change as sales change. Then one man can see how to control inventories and material flow. You can adjust stocks of raw materials, in-process inventory, and finished goods to your sales forecasts. That is what top management wants—a whole system in balance, so you get high material flow velocity and lower volume, with the benefits of lower handling cost and reduced dollar lockup.

Other specifications. In addition to these specific attitudes toward material control which advanced management wants in a man, they also have clear-cut ideas of what makes a good man for managerial jobs. In December we will discuss these specifications more fully, from your point of view.

Green fields beyond. After viewing these hurdles it is reassuring to remind ourselves of the incentives beyond them. The future offers exciting possibilities. It is conceivable that we may some day transmit matter through the air as we now transmit pictures and sounds. We all pooh-poohed Buck Rogers, but it is now likely that men will visit other planets in our lifetime, and the predictions of Jules Verne are commonplace facts today.

Some of the developments that our present knowledge make reasonably attainable within the next few decades are:

1. Air-supported gantries capable of traveling over water to unload a ship, returning to deliver the load direct to a storage or use point on land.
2. Mile-a-minute conveyors, using a magnetic field to counterbalance centrifugal force at turns and to decelerate the load rapidly.
3. Remotely controlled operatorless industrial trucks working according to programmed instructions, monitored by television and equipped with radar safety devices.
4. Pilotless aircraft carrying cargo from city to city.
5. Air-flotation monorail carriers moving batch cargo at speeds over 400 miles an hour.

These and many more technological achievements are in the laboratory and research stage now.

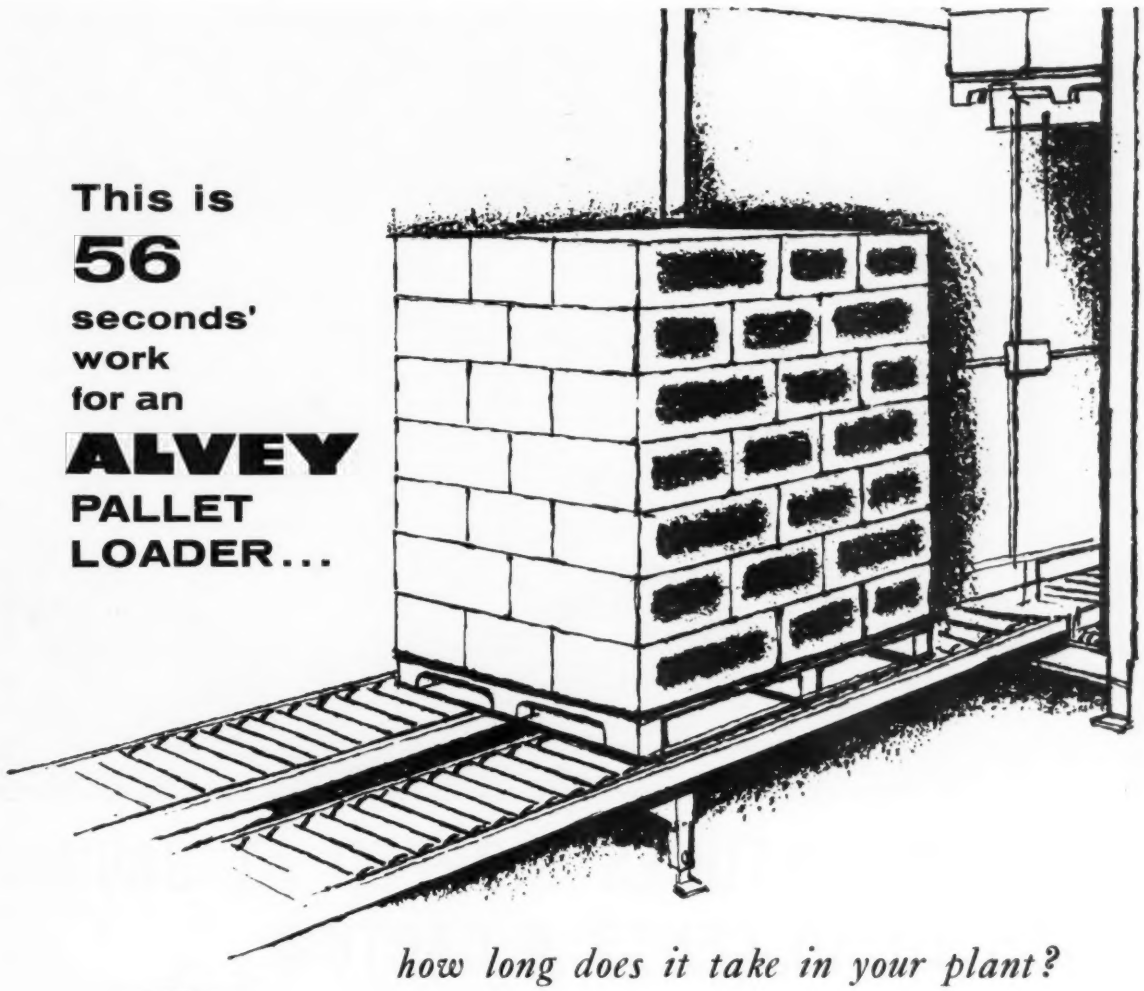
The manufacturing engineer has in many instances reached a point of diminishing return as a source of economic betterment for the world. Full automation is his next, final step!

The distribution revolution goes well beyond automation as the major opportunity for improving free world economics.

It's your ball game!

There are opportunities unlimited! ♦

This is 56 seconds' work for an ALVEY PALLET LOADER...

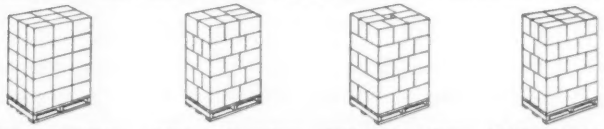


how long does it take in your plant?

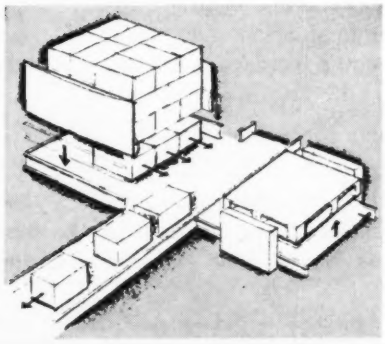
1911 1961 ALVEY'S 50th year ALVEY CONVEYOR MFG. CO.

Alvey's Pallet Loader automatically stacks cartons on pallets direct from your production lines, at speeds ranging from 40-60 cases per minute. You pre-set the desired stacking pattern and the number of tiers; the Alvey Automatic Pallet Loader does the rest.

Alvey Loads Pallets In These Patterns And Many More



Nine-case pattern Column pile | Seven-case pattern Tiers interlock | Eight-case pattern Pinwheel pattern Tiers interlock | Eight-case pattern Tiers interlock



Alvey's De-Palletizer receives incoming pallet loads, unstacks them and feeds the empty cartons to your handling line at the rate of 45 per minute—all automatically.

When can we talk over your material handling needs?

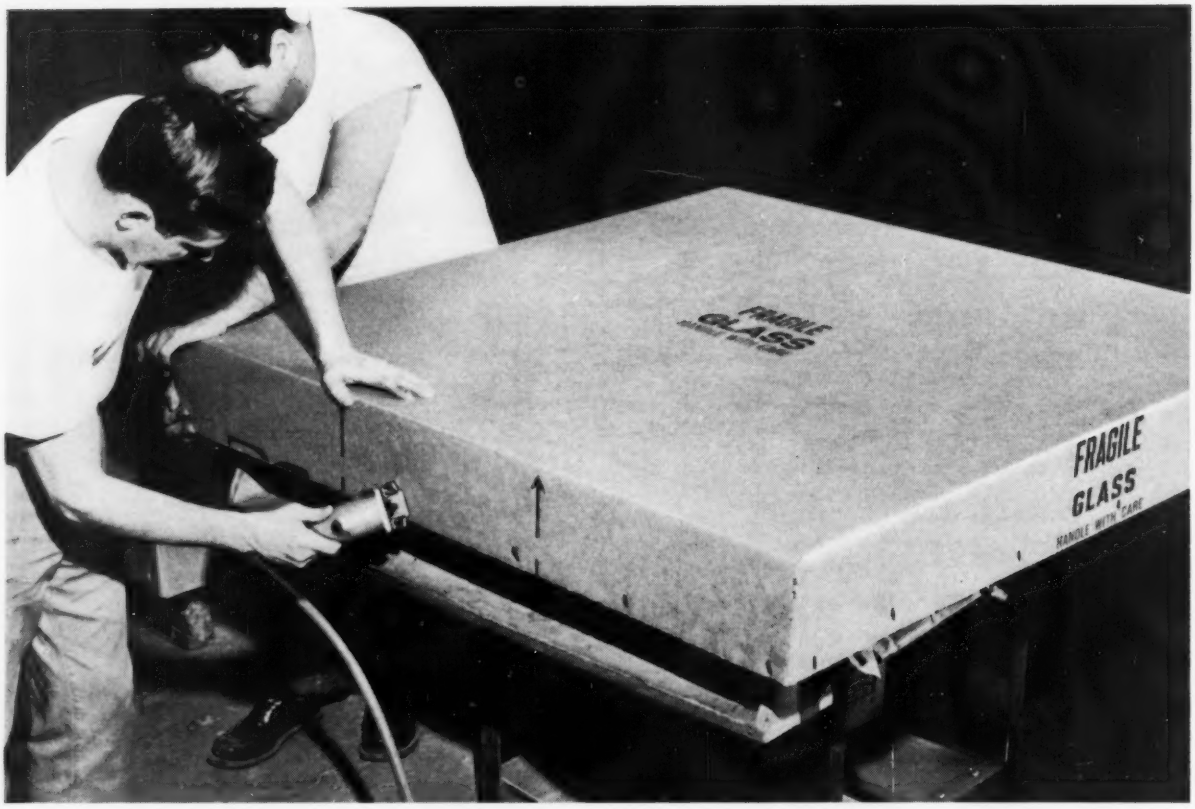
ALVEY CONVEYOR MANUFACTURING COMPANY

9299 Olive Street Road, St. Louis 32, Missouri

Branch Offices in Principal Cities

Companies like these use Alvey pallet handling equipment:
Coca Cola • General Mills • Hershey Chocolate • Shell Oil • Welch Grape Juice • Western Electric

Circle 5 on Reader Service Card

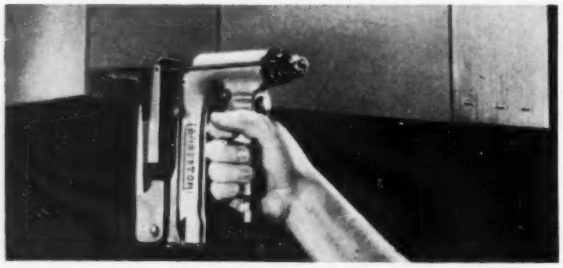


LIGHTING FIXTURES SHIPPED AT SAVINGS OF 35 TO 40 CENTS A CARTON WITH BOSTITCH® STAPLING

This manufacturer of fluorescent lighting fixtures uses Bostitch stapling for packaging large commercial and industrial fixtures up to four feet square. Air-driven Bostitch staplers are used to assemble top and bottom halves of the 275-lb. test telescope containers ranging in size from two to four feet square. The same Bostitch machine is used to make four corner inserts for each box to hold contents in place. Containers are then closed with air-driven Bostitch stapler using self-clinching staple.

Stapling has been found to be at least 25% faster than the old method and costs have been reduced from 35 to 40 cents a carton. Another advantage of stapling has been the increase in strength for better "stacking ability."

To get the facts on the benefits possible from the use of stapling, call your Bostitch Economy Man. He's listed in the phone book. Ask for his analysis of the cost and speed factors in your shipping operation. He may be able to point out similar savings for you.



Only three staples are necessary in each corner to assemble both the top and the bottom sections of telescope corrugated cartons with the Bostitch T21 Plier.

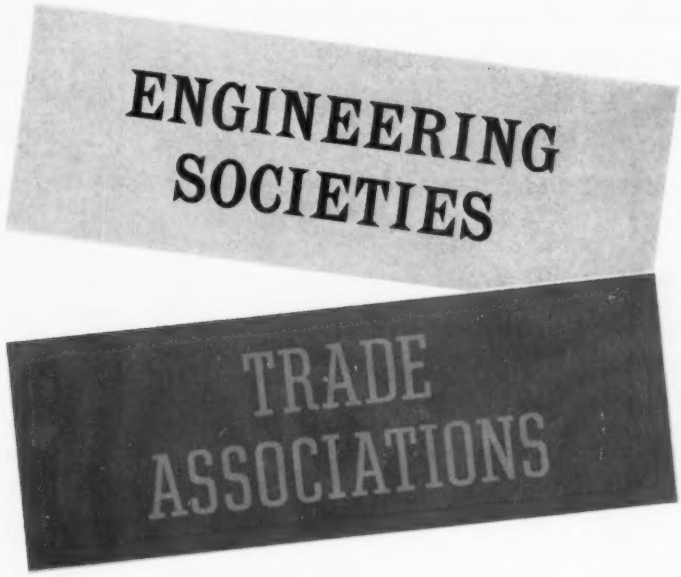
Fasten it better and faster with

BOSTITCH®

STAPLERS AND STAPLES

710 BRIGGS DRIVE, EAST GREENWICH, R. I.

Circle 14 on Reader Service Card



How material handling is organized

LISTEN CAREFULLY, Mr. Material Handling Man. What I have to say won't take long—but you'd better read it now because time is running out on you.

I don't think you're ready to fight for the big job of controlling material flow that's just around the corner. Or, at least, you're not looking for weapons to fight with.

What makes me think this way? The simple truth that in order to fight effectively you have to be organized—and you're not organizing. I see no indications that you're throwing fresh support to your best outlet for organized activity—the material handling societies.

Granted that the societies themselves haven't gone as far as they should to support the concept of material flow management. They're stretched too thin because they lack members, and they have a desperate need for aggressive men with new ideas.

Some facts. An MHE survey showed that 42 percent of the men with engineering responsibilities in material handling do not belong to *any* engineering society. Only 27 percent belong to The American Material Handling Society, 11 percent to The Society of Packaging and Handling Engineers. Sixteen percent are members of The American Society of Mechanical Engineers, The American Institute of Industrial Engineers, The American Institute of Electrical Engineers, etc. This is a poor showing for organized engineering activity in general.

Conclusion: Material handling men aren't drawing up battle lines for the struggle ahead. Maybe you don't believe that this big job is coming, or maybe you don't think you can be a manager, or maybe you aren't convinced that material handling societies can help you make the grade. We wrote our Project Upgrade series and held seminars to give you a positive approach to the first two points. Now I want to change your thinking on the third.

No matter how you look at it, you're going to need organized strength to convince management that material handling is the best stepping stone to a big job in material control. Otherwise, a better organized, better publicized group is going to catch the brass ring. Don't get me wrong—your individual talent and experience alone might get you the job. But you're playing the game at longer odds if your management hasn't been softened up beforehand by strong, organized pressure on your behalf.

With this in mind, we have prepared a report on the state of material handling in engineering and technical societies. You'll see that in these societies the concept of material flow management barely exists. Which is where your active participation in these groups, especially the two material handling societies, is so desperately needed. Only by channeling the precepts of Project Upgrade into an organized effort can you pave the way for the uphill climb from material handling to material flow management.

Bernie Knill

Editor

ENGINEERING, TECHNICAL, AND PROFESSIONAL SOCIETIES

THE AMERICAN MATERIAL HANDLING SOCIETY, INC.

2860 E. 130 St., Cleveland 20, Ohio

Founded 1949, now has 5000 members. The only society to officially recognize the trend toward material flow management. Has an Integrated Materials System Committee for the purpose of teaching and spreading the concept. Sparked by the efforts of Tom White of Hotpoint, the IMS idea is filtering down to chapter level. AMHS also works on Packaging-Handling Coordination, is publishing a PHC handbook.

THE SOCIETY OF PACKAGING AND HANDLING ENGINEERS

National Office, Suite 1534, 14 East Jackson Blvd., Chicago 4, Illinois

Organized 1945, has 1200 members. Works toward good engineering practices in packaging and material handling, tries to coordinate them. Stresses packaging strongly. Sample activity: Maryland Chapter's Eastern Packaging and Handling Show, November 13-14. SPHE sponsors National Packaging Competition Awards in conjunction with show; also Packaging Short Course.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

United Engineering Center, 345 East 47 St., New York 17, N.Y.

Big society, more than 57,000 members. Has a Material Handling Division with 3300 members. Purpose: Develop safety codes, mechanical standards, and recommended practices concerning MH equipment. Sample activity: study of bulk material (sand, grain, coal, ore, etc.) for technical data on flow qualities. Will hold Symposium on Bulk Solid Handling (see Calendar on page 105). ASME publishes papers on MH subjects. Sample: "Advances in Material Handling" (proceedings of 1958 MH Conference) $4.50.

SOCIETY OF AUTOMOTIVE ENGINEERS

485 Lexington Ave., New York 17, N.Y.

Technical engineering society, 25,000 members. Material handling subjects might be covered by any Division: Aero-Space, Automotive, General Materials, General Standards. Kinds of activity: papers, programs. Sample subjects of MH interest: ground support; in-plant handling; air transport. SAE will hold Combined Fuels & Lubricants; Powerplant; and Transportation Meetings, October 29-November 2, Philadelphia.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

United Engineering Center, 345 East 47 St., New York 17, N.Y.

Has subcommittee on material handling with membership of 28. Holds conference on MH and packaging. This year AIEE held a conference on packaging machinery

Continued on page 74

TRADE ASSOCIATIONS

Another phase of organized activity in the material handling field is the network of trade associations, whose members are manufacturers of MH equipment. These associations aid the MH man in various ways:

- Provide educational material on use of equipment. This may take the form of bulletins, films, speakers for user groups, seminars, etc. (See a listing of some of these activities on the opposite page.)
- Develop standards.
- Offer inspection, grading, and certification of equipment.
- Set up good trade practices and business ethics.

THE MATERIAL HANDLING INSTITUTE

Hub of organized material handling activity is The Material Handling Institute, Inc. This organization provides an effective clearinghouse for information from manufacturers, users, and educators. Some of the MHI activities which help you directly:

- Regional trade shows which bring equipment and technical sessions to various parts of the country.
- Provides financial and manpower for the College-Industry Committee on Material Handling Education. (This committee has recently brought out a Lesson Guide Outline for a full course of MH instruction) It also sponsors movies: "The Outdoor Storage and Reclamation of Bulk Materials"; "Roller, Wheel, and Live Roller Conveyors and Related Materials"; and "Narrow Aisle Trucks" are three of the newest.
- Publishes a series of "Know-how" booklets on material handling.
- Sponsors an Idea Center at the shows. This consists of hundreds of photo-stories of material handling applications segregated by industries and services.
- Publishes a booklet on Career Opportunities in the MH field.

GOVERNMENT ACTIVITY

A strong link between trade associations and industry is provided by the United States Department of Commerce. Here are some of its activities:

- Publishes a Directory of National Associations of Businessmen, 1960 (for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., or through any U.S. Department of Commerce Field Office, 50 cents).
- Records information on association conventions and trade shows as a service to industry.
- Is preparing a manual on "Association Books" to be published soon. This will list 60 publications on various phases of association activity.
- Publishes an "Association Letter" monthly (Chamber of Commerce of the U.S., Association Service Department, 1615 H St. N.W., Washington 6, D.C.).

TRADE ASSOCIATIONS	Latest bulletin or standard of interest to user; outstanding book, film. Activities of interest to user.
ASSOC. OF LIFT TRUCK AND PORTABLE ELEVATOR MFRS. *Pittsburgh 22, Pa.*	Booklet: "Portable Elevator for Material Handling."
BULK PACKAGING AND CONTAINERIZATION INSTITUTE *New York 17, N.Y.*	Develops information on containerization standards.
CASTER & FLOOR TRUCK MFRS. ASSOC. *Chicago 3, Ill.*	Book: "Engineering & Purchasing Planbook" ($3.75). New Standard: "Revised Standard for Towline Trucks."
CONVEYOR EQUIPMENT MFRS. ASSOC. *Washington 5, D.C.*	New standard: "Keys, Keyseats, and Keyways." Films: "It's Your Move" (1960). Book: "Conveyor Terms and Definitions" ($2.00).
DOUGLAS FIR PLYWOOD ASSOCIATION *Tacoma 5, Washington*	"Plans and Specifications for 24 Fir Plywood Pallets", "Specifications for Douglas Fir and Western Softwood Plywood Pallets."
ELECTRIC OVERHEAD CRANE INSTITUTE, INC. *Washington 5, D.C.*	New specification: EOCI No. 61 "Specifications for Electric Overhead Traveling Cranes."
FIBRE BOX ASSOCIATION *Washington 6, D.C.*	Booklet: "Corrugated and Solid Fibreboard Boxes and Products Handbook."
THE FOLDING PAPER BOX ASSOCIATION OF AMERICA *Chicago 6, Ill.*	Sponsors the annual Folding Carton Competition and educational exhibits for public displays. Publishes "The Folding Carton."
GUMMED INDUSTRIES ASSOCIATION, INC. *New York 36, N.Y.*	Booklet: "What Every Shipper Should Know about Proper Package Sealing." Standards on gummed paper tape of many kinds.
HOIST MANUFACTURERS ASSOCIATION *Washington 5, D.C.*	New standard: HMA-400 "Standard Specifications for Electric Chain Hoists."
INDUSTRIAL LIFT AND LOADING RAMP INSTITUTE *New York 17, N.Y.*	General equipment data.
INDUSTRIAL TRUCK ASSOCIATION *Pittsburgh 22, Pa.*	Book: "The Handbook of Powered Industrial Trucks" ($5.00).
MATERIAL HANDLING EQUIPMENT DISTRIBUTORS ASSOCIATION, INC. *Washington 6, D.C.*	Develops ethical selling practices for MH equipment for user protection. Has programs of user education in MH activities.

TRADE ASSOCIATIONS	Latest bulletin or standard of interest to user; outstanding book, film. Activities of interest to user.
THE MATERIAL HANDLING INSTITUTE, INC. *Pittsburg 22, Pa.*	See description of activities on opposite page.
MONORAIL MANUFACTURERS ASSOCIATION *New York 1, N.Y.*	New bulletin: "Material Handling with Monorail" (24 pages).
NATIONAL LP-GAS COUNCIL *Evanston, Illinois*	Booklet: "LP-Gas—Versatile Fuel for All Industrial and Commercial Use" (20 pages). Film: "Living Pleasure" (15 minutes, color).
NATIONAL PAPERBOARD ASSOCIATION *Washington 6, D.C.*	Bulletin: "An Everyday Wonder . . . Paper."
NATIONAL WOODEN BOX ASSOCIATION *Washington 6, D.C.*	Specification: Nailed & Lock-Corner Boxes. Also: specification for building of unit loads, developed in conjunction with the AAR.
NATIONAL WOODEN PALLET MFRS. ASSOC. *Washington 6, D.C.*	Grading: NWPMA Grade Mark for assembled pallets. Book: "Technical Handbook on Pallets and Palletization" ($1.00).
PACKAGE CONVEYOR INSTITUTE *Buffalo 13, N.Y.*	General equipment data.
PACKAGING MACHINERY MFRS. INSTITUTE, INC. *New York 17, N.Y.*	Show: Sponsors annual PMMI show. This year in Detroit, November 7-10. Details on page 14.
POWER CRANE & SHOVEL ASSOCIATION *New York 17, N.Y.*	Standard: "Power Cranes and Shovels"; Film, "It's a Matter of Time"; Booklet, "125 Ways to Better Power Shovel-Crane Operation."
PRESSURE SENSITIVE TAPE COUNCIL *Glenview, Ill.*	New film: "Touch of Power." Book: "Directory of Tapes" ($1.00).
RACK MANUFACTURERS' INSTITUTE *Chicago 48, Ill.*	Grading: RMI Seal of Good Practice.
SCALE MANUFACTURERS ASSOCIATION INC. *Washington 5, D.C.*	Booklet: "Suggestions for the Selection, Installation, and Maintenance of Motor and Truck Scales." Chart: "Scale Error Chart."
WIREBOUND BOX MFRS. ASSOC. *Chicago 4, Ill.*	Bulletin: "Material Handling—Stacking—Warehouse Applications of Wirebound Boxes and Crates."

Circle 21 on Reader Service Card

THIS CHEM-BOARD* BINBOX IDEA
SAVES INVENTORY TIME and MONEY

*Chem-Board is the product of Convoy's process for chemically impregnating corrugated board, making it flint-hard and rock-strong.

WEIGHING IS FASTER THAN COUNTING

Instead of scooping out contents of a bin to count or weigh items at inventory time, the entire box is easily pulled out and weighed. Each stored part has a known count per pound. With the tare of the Convoy Bin Box established, the result is a tremendous saving in inventory time and effort.

Convoy Boxes may be *your* answer.

GET IN TOUCH WITH

CONVOY, INC.
CANTON 6, OHIO
P.O. Station B, Box 216-F

STANDARD AND CUSTOM-MADE NESTING, STACKING, and VERTICAL-SIDED CHEM-BOARD TOTE BOXES

Check for VALUE in a HOIST . . . and You'll Buy

Euclid Series S

Competitively priced, these hoists incorporate all the desirable features of design, operation and maintenance that have characterized Euclid products for more than 50 years.

FEATURES
- Compact, Trouble-free.
- One-piece, heavy steel.
- Combination hoist frame and gear housing prevents misalignment or oil leakage.
- Complete motor interchangeability permits use of any (Standard NEMA "D" Flange Mount Series 180 or 210) motor with integral disc brake.

4-button station and motor driven trolley permits guiding of load.

"S" Hoists are also offered with lug and hook-on suspensions; plain trolley and hand racked. Write for data.

THE EUCLID CRANE & HOIST CO.
1365 Chardon Road • Cleveland 17, Ohio

Circle 36 on Reader Service Card

ENGINEERING SOCIETIES

AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS

United Engineering Center, 345 East 47 St., New York 17, N.Y.

Young society, 10,000 members. As yet has no divisions. Insiders predict that functional breakdown will be made to allow members to follow their specialties. Material handling will be one of the categories.
in Swampscott, Mass.)

AMERICAN MANAGEMENT ASSOCIATION, INC.

1515 Broadway, New York 36, N.Y.

Members are management men. AMA holds seminars, runs workshops; publishes books, reports. Material handling a responsibility of the Manufacturing Division. Packaging has a Division of its own. Important activity: annual AMA Packaging Show (this year held in Chicago, April). Sample of recent MH activity: seminar on order picking.

AMERICAN SOCIETY OF TOOL AND MANUFACTURING ENGINEERS

10700 Puritan Ave., Detroit 38, Mich.

Basic interest is manufacturing engineering. Sometimes holds seminars on automation aspect of material handling.

ASSOCIATION OF PROFESSIONAL MATERIAL HANDLING CONSULTANTS

9116 Four Winds Way, Skokie, Illinois

Members: (1) general practice MH consultants (2) men who work for one company but who are consultants to divisions of that company. Recent APMHC project: developing standards for unit loads in food industry.

NATIONAL INSTITUTE OF PACKAGING, HANDLING, & LOGISTIC ENGINEERS

402 Washington Bldg., Washington 5, D.C.

Members are packaging and handling engineers. Interest slanted toward government packaging requirements. Sponsors NIPHLE Annual Achievement Award for continued outstanding contribution to government packaging, handling, or logistics.

THE AMERICAN STANDARDS ASSOCIATION

10 E. 40th St., New York 16, N.Y.

Touches material handling in the field of standardization; most recently, standardization in the area of containerization. Recently published "American Standard Specifications for Freight Containers (Nominal Van Container Sizes) MH 5.1–1961. This was prepared by the MH5 Committee (Sectional Committee on Nominal Sizes of Van Containers). ♦

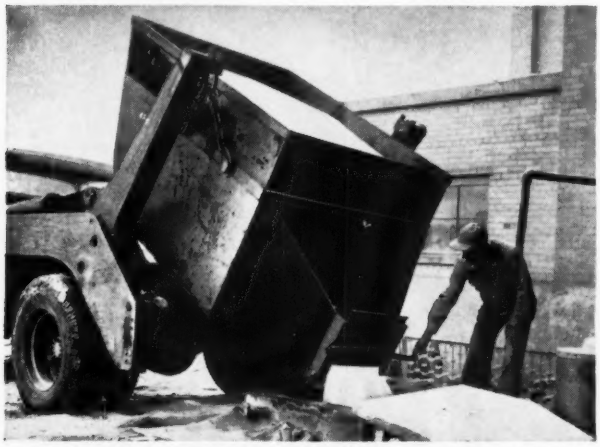
MHE will continue to follow the material handling activities of all engineering societies, with special emphasis on AMHS and SPHE. Because of their background and membership, these two societies are most likely to develop the material flow management concept. But they can't do it without your support. A membership in an organized material handling movement is an investment in your career.

LOAD LUGGER® System is Key to...

LOAD LUGGER hoisting aboard 14-cu-yd container to be hauled to dump. Many trips are made each day.

good plant housekeeping...

LOAD LUGGER System reduced disposal costs two-thirds at a Chicago plant. Refuse accumulates in LOAD LUGGER containers throughout plant and yards. These are picked up by LOAD LUGGER truck, hauled two miles to disposal grounds and dumped. No more messy handling, sporadic pickups, or wasted truck and driver standby time.



LOAD LUGGER truck dumps 5-ton load of salt into underground storage. *LOAD LUGGER* saved $1,560 annually on this operation alone.

efficient handling and storage...

Michigan plant improved handling and reduced costs with LOAD LUGGER and 25 containers of various types. Installed as part of modernization program, LOAD LUGGER system requires but a single driver, replaces two dump trucks, front-end loader and twelve men. System permits bulk handling and buying, best possible use of space.

better salvage and reclamation...

Greater return is realized on scrap by a Milwaukee company, because different types are carefully segregated into hoppers, then dumped into LOAD LUGGER containers. Other LOAD LUGGER containers are spotted at various points throughout the plants and yards to receive scrap and refuse.

Find out how the *LOAD LUGGER* System can improve operations, cut costs for you. Write for information and the name of your dealer.

1½- to 16-cu yd capacities

SELF-LOADS AND UNLOADS | HAULS | SELF-DUMPS

Factories: Milwaukee, Wis. • Hillside, N. J.; Lancaster, Pa.; Cleveland, Ohio; Modesto, Calif.

THE HEIL CO.
MILWAUKEE 1, WISCONSIN

LOAD LUGGER and HUGE HAUL SYSTEMS

Sales Offices: Hillside, N. J.; Washington, D. C.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; Seattle, Wash.

Circle 54 on Reader Service Card

ROEBLING ROEGAL® CABLE-LAID SLINGS

The *strength* comes from seven individual preformed Roegal wire ropes — ropes made by Roebling expressly for use in cable-laid slings. In addition, the tapered sleeve splice develops the full catalog strength of the sling body. And the special galvanized finish provides corrosion-resistance without any reduction of the wire rope's tensile strength or toughness.

The *hemp-like* handling qualities are provided by the cable-laid construction. It gives highest flexibility, beats kinking and crankiness.

The *combination* is a marvel of working convenience. The extra-flexible construction keeps handling and rigging time to a minimum. And in addition to corrosion-resistance, the Roegal coating provides a clean finish. These assets make Roebling Roegal Cable-Laid Slings particularly effective if you're handling pipe, tubing or finished machined parts.

Available in a variety of sizes, as chokers or in single-leg and multi-leg constructions. Beside loops, end fittings include hooks, thimbles, shackles, open and closed swaged sockets. Find out today from your Roebling distributor how much of a lift Roegal Cable-Laid Slings can give you . . . or write to Roebling's Wire Rope Division, Trenton 2, New Jersey.

ROEBLING

Branch Offices In Principal Cities
John A. Roebling's Sons Division
The Colorado Fuel and Iron Corp.

Circle **104** on Reader Service Card

Read this . . . *Order this . . .* *Install this . . .*

Save up to ⅓ the cost of your next conveyor with Handidrive components

Why pay big premiums for unnecessary custom engineering? Order your next conveyor mail order style . . . right out of STANDARD CONVEYOR's new *Handidrive* Handbook. Get fast delivery right off the shelf . . . save up to ⅓ the usual cost.

How? Using this valuable new Handbook, you can plan your own installation, order the components you need from factory stock, and then assemble them yourself with simple tools to save on erection costs. And, should you need help, our conveyor specialist in your city will be happy to give free advice on layout, ordering, prices and installation.

In-stock *Handidrive* components include gravity and power roller sections, belt sections, drive units, curves, supports, hangers, tapered sections, guardrails, feed sections, diverters —everything you normally need for an efficient, low-cost conveyor installation.

Moreover, all components are interchangeable to simplify future alteration of your *Handidrive* system to meet changing material handling requirements.

Check these Standard-ized Handidrive "right-off-the-shelf" benefits

- Lower initial cost . . . you buy only what you need!
- Inexpensive to alter or add to.
- Stock items cost us less to build . . . cost you less to buy!
- The most complete line of fully integrated units all from a single source.
- Ready to ship as fast as we can process your order!

Here's the Handbook *that tells you exactly what to do to cut costs with pre-engineered HANDIDRIVE conveyors. Send for your free personal copy now. Just fill in the coupon, attach to your letterhead and mail. Do it today!*

Standard Conveyor COMPANY

Sales and Service in Over 40 Cities
Look in your Yellow Pages under "CONVEYORS"

STANDARD CONVEYOR COMPANY
302-K Second Street, North Saint Paul 9, Minnesota

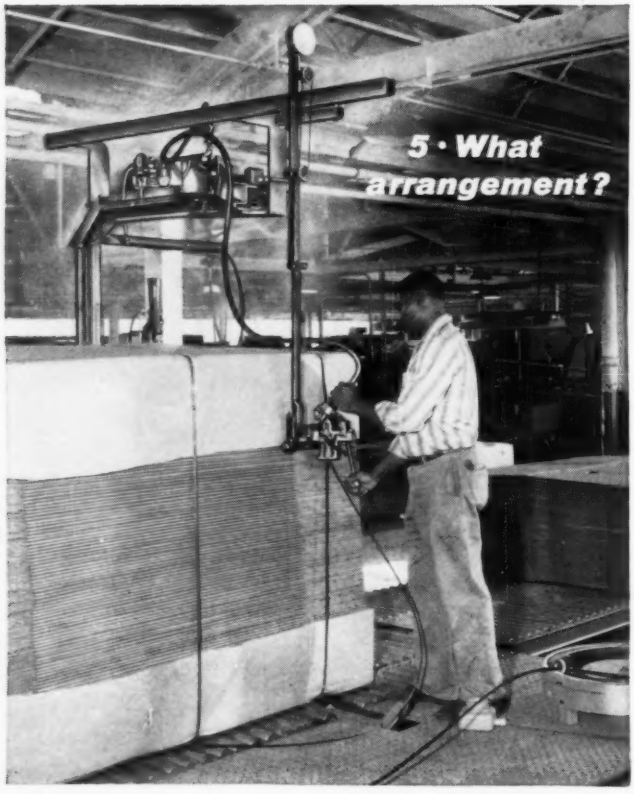
Please send me your new HANDIDRIVE Conveyor Handbook.

YOUR NAME_____

YOUR TITLE_____

Circle **119** on Reader Service Card

5 Basic Strapping Questions...



1. Where do you put the straps and how many should you use?

2. What kind and size of strapping is best for the application?

3. Should you use hand tools, power tools, or automatic strapping machines?

4. Would a simple jig or fixture help?

5. How should the work, the material flow, the tools, and the equipment be arranged?

Wrong answers are costly... right ones are free

If you have the right answers to these five questions, chances are that steel strapping is saving you money, making your products cost less to handle, ship, store, and receive.

But will those answers stay right? Your business does not stand still, any more than ours does. New products, new packages, new methods, new customer demands come along. Yesterday's right answers may be today's wrong ones.

You need right answers *on a continuing basis*—and you get them free from Signode, with the help of—

- trained packaging and shipping specialists.
- the widest selection of hand and power strapping tools and automatic strapping machines.
- the most complete testing and engineering facilities.
- 48 years of experience in solving packaging, handling and shipping problems.

Why settle for less? For right answers, call the Signode man near you, or let us put him in touch with you.

SIGNODE

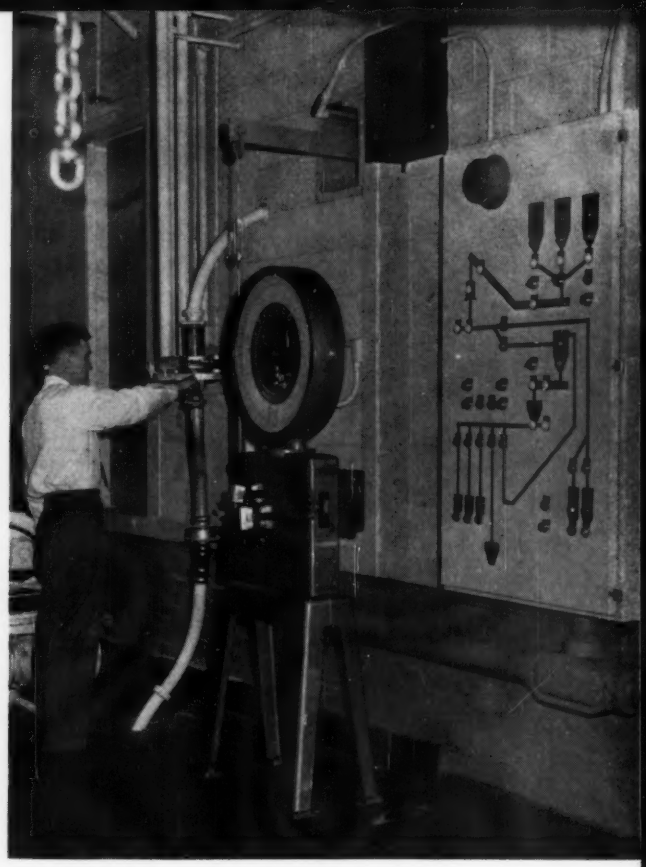
First in steel strapping

SIGNODE
STEEL STRAPPING CO.
2618 N. Western Avenue, Chicago 47, Illinois
Offices Coast to Coast, Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

Circle **112** on Reader Service Card

Run system, spot trouble from one point

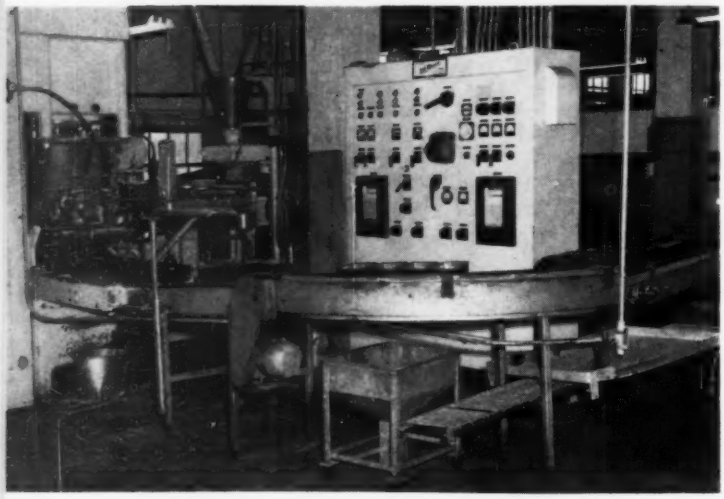
By **DICK DIETZ**, *associate editor*



CHARLIE SWAN sets the manual diverting switch to one of five position This switch and the automatic scale are next to the bulk flour control pan The panel (right) is a flow diagram of the system.

CHARLIE SWAN showed me one of the neatest pneumatic handling control panels I ever saw. He made it convey, weigh, and deliver flour from storage to mixing, all with uncanny accuracy. I watched the flow through plastic sight tubes.

Charlie's proud of the system because it makes a highly automatic bakery even more automatic. Much of the equipment, like that which goes into dough mixing, you can buy ready made. But Charlie's bulk handling system interested me because he custom designed it to make flour handling as automatic as the rest of the system.



PREMIXER (in background) is worked from control panel which tells workers whether dough has the right consistency. Dough drops into pans from developer (left).

He engineered bulk handling, specified relays, timers, limit switches, interlocks, circuits, and other electric parts. This wouldn't be unusual except that he's a mechanical engineer, a graduate of the University of Tennessee. He's Charles K. Swan Jr., vice president and director of production and engineering at Swan Bros. Inc., a Knoxville bakery.

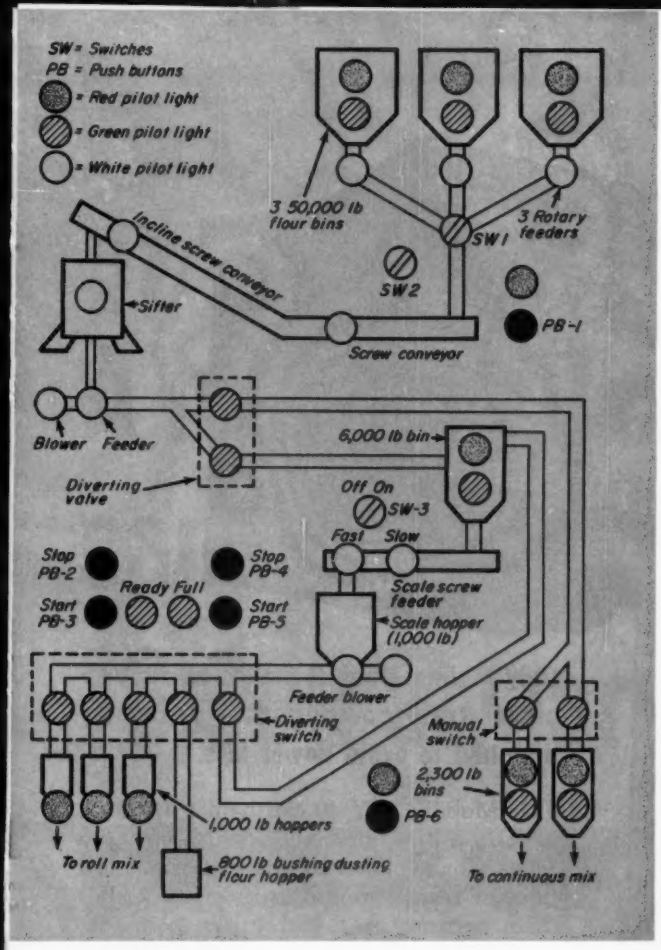
Why it's good. The bulk flour control panel provides two things: buttons to run the process and a comprehensive flow diagram with lights that tell what's working. "You can look at those lights," says Charlie, "and trouble shoot the entire system."

The lights have these meanings:

- White—motors running.
- Red—danger or full hoppers.
- Green—low hopper levels or diverting valve positions are in action.

A horn blows when a bin goes empty. You must push a button to silence the horn, so there's no ignoring it.

Everything's automatic. Swan's breadmaking line is a good commercial system found in up-to-the-minute bakeries. They prepare broth (yeast, sugar, salt, water, enrichment tablets, mineral yeast, food, and milk) in six tanks. Yeast ferments in the broth, cuts dough processing from several hours to three minutes, says Charlie. In other tanks they prepare shortening and oxidation compounds.



These tanks send their contents directly into a premixer into which the bulk flour from Charlie's system is carefully measured. The premixer handles only 200 lb. of dough at a time, but it's continuous. Pumps push dough from the premixer to the developer (run by a 50-hp. motor). Then the dough is cut—accurately according to weight—and dropped into pans.

Conveyors carry the pans to a proofer, a room where 110°F and 88 percent relative humidity help the dough rise in an hour. Pans of dough then move on conveyor to a 70-ft.-long oven for a 22-minute baking trip in and out, also by conveyor.

On to wrapping and shipping. An automatic depanner dumps the bread from the pans. Conveyors move the loaves to a bread cooler, a giant, slow-moving tray type conveyor. It runs the loaves back and forth on 10 consecutive levels at room temperature. Charlie says bread temperature drops from 210°F (oven heat) to 105°. The cooler can hold 7,500 loaves.

They leave the cooler on two conveyors, ride to slicing machines, then to automatic wrapping machines. An inspector removes substandard loaves. Workers place 4, 5, or 8 wrapped loaves (depends on loaf size) in corrugated cartons.

A shipping conveyor runs the cartons to a spiral conveyor which unloads at two levels. That's because shipping docks are on the floor below. One level sends cartons along a conveyor the length of the city truck dock. The other level sends cartons to an out-of-town shipping station.

THE PANEL IN ACTION

Charlie Swan's panel lays out bulk flour handling from receiving to mixers. The bakery receives flour in 40,000-lb.-capacity bulk trucks. A 3-inch tube pneumatically conveys flour to any of three 50,000-lb. bins at 16 tons an hour.

The panel starts with these bins. Red lights on: full hoppers. Green lights on: low levels. Turn SW 1 for flour from a particular bin. White pilot lights tell you rotary feeders are pouring flour into the screw conveyor. Other controls for the flour bins: SW 2 cuts off flow to the collector screw, enabling the system to run empty for cleaning. A red light above PB 1 lights up and horn blows when a bin runs empty. PB 1 silences the horn. When you change SW 1 to the next full bin this automatically turns out the light and resets the horn.

The incline screw conveyor carries flour to the sifter. From there a blow-through rotary feeder moves flour at 250 lb. a minute. Depending on position of the diverting valve, flour settles in the 6,000-lb. bin which feeds roll making or in the two 2,300-lb. bins (lower right) for continuous bread making.

The selected bin automatically remains full. It takes precedence over the 6,000-lb. bin. Thus, if it calls for flour, the diverting valve shuts off the 6,000-lb. bin until the bread bin is full. Then the valve permits flour to enter the 6,000-lb. bin. Flour for bread flows continuously into a weighing scale feeder and then to the premixer.

Batching. The 6,000-lb. bin provides flour for roll making as needed. A mixing room worker sets a scale for the proper weight of a flour batch. A green pilot light (marked "ready") tells him the scale is prepared to receive the flour. He pushes PB 3 to start the scale feed screw conveyor. This has two speeds, one for fast filling, the other for half speed filling the final 15 lb. Another green pilot light (marked "full") tells when the scale hopper contains the full load set by the scale.

The worker then sends flour by manual switch to any of five places: three 1,000-lb. hoppers where flour can go directly into a mixer or remain until needed, an 800-lb. dusting flour hopper, or back to the 6,000-lb. hopper if an error, say, incorrect weight, has been discovered.

Interlocks help eliminate errors. The 6,000-lb. hopper cannot send a second batch into a 1,000-lb. hopper until the first batch is gone. It's impossible to run flour into a 1,000-lb. hopper if its valve is open. ♦

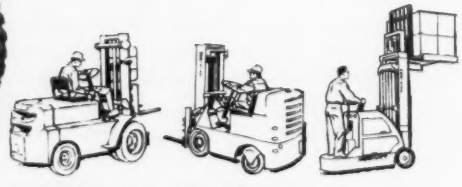
CARTONS of bread move to spiral conveyor which sends them off on one of two lower levels. Which level depends on whether the bread goes to city routes or out of town.

MOST POWERFUL TRUCK IN ITS CLASS!

Only Moline Mobilift makes all its own power train components—perfectly matched to avoid power loss.

This Mobilift MY 40 can haul a 4,000 lb. load up a 31% incline . . . effortlessly. Because Moline makes all its own engines and "power train" components and matches them perfectly in a highly simple design, the MY 40 delivers more power at the drive wheels than any other truck in its class. Many parts are interchangeable with other Mobilift trucks—another Moline exclusive. And Mobilift gives you exclusive on-the-go shifting (no pedals); the operator can move more tons per hour. One more Mobilift exclusive: full pressure engine lubrication.

The MY truck also comes in the 6,000 lb. capacity MY 60. Choose from a full line of stand up, sit down or tow trucks. For full information write Minneapolis-Moline today. Distributed by John Morrell Manufacturing Co., a subsidiary of Minneapolis-Moline Co., Hopkins, Minn.



MY40 MY60 M30 M40

LIFT TRUCKS

MOBILIFT

MINNEAPOLIS-MOLINE COMPANY

Materials handling equipment • Farm machinery and tractors • Construction machinery • Power equipment • Engines • Electronics

Circle **86** on Reader Service Card

IT'S BOUND TO BE BETTER WITH A USS STEEL STRAPPING MACHINE

A machine like this can save you $6,000 a year...and more!

It's the USS Model 12 Automatic Round Steel Strapping Machine. The Joliet Works of U. S. Steel's American Steel and Wire Division uses it to strap all their nail cartons. Formerly, it was necessary to stop the conveyor line about 20 times per day to change carton sizes. Each change-over took over five minutes. With installation of the Model 12, the change-over takes only a matter of seconds. Previous strapping methods required two-way tying for sufficient strength. This has been eliminated with the round steel strap. Now, one round steel strap gives the same strength, thus reducing strapping costs by shaving material needs by thousands of feet per day.

At ASW, the Model 12 straps thousands of nail cartons daily with strong, 16-gauge USS Round Steel Strapping. In addition to practically eliminating change-over time, the labor-saving Model 12 takes only 7½ sq. ft. of floor space and weighs only 1,300 pounds.

Find out how the automatic Model 12 can help cut costs and speed production in your operation. See our new industrial film showing many possible applications for the Model 12. Send the coupon.

USS TRADEMARK

U. S. Steel Supply
Division of
United States Steel

U. S. Steel Supply
U. S. Steel Corporation
208 South LaSalle Street
Chicago 4, Illinois

Please send me more information on:

☐ USS Model 12 Automatic Round Steel Strapping Machine.
☐ The new industrial film entitled, "Tie This."

Name_____

Company_____

Address_____

City_____ Zone____ State_____

Circle **125** on Reader Service Card

mhe BULLETINS CATALOGS FILMS

How LP-Gas Compares

"LP-Gas for All Industrial and Commercial Uses" gives technical information on LP-gas for industrial truck operation. It reports comparative tests in which liquified gas gave 10 percent more horsepower output than gasoline, 20 percent more than Diesel fuel. Charts other characteristics comparatively. 20 p. *National LP-Gas Council*

Circle **301** on Reader Service Card

Pallet Trucks

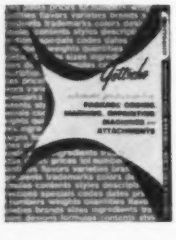
Bulletin emphasizes quality features of new hand pallet trucks. Stresses use of high strength materials, precision machining of linkage mountings, hydraulic system, and other moving parts, to make trucks wear longer. Also: pistons and ram made of hardened, precision ground, chrome plated steel; uses Teflon packing for low friction, long life. Priced to outsell imports. Specs, dimensions for 2,500- and 4,500-lb. capacity models in Bulletin P-25, 2 colors, 2 p. *Prime-Mover Co.*

Circle **302** on Reader Service Card

File on Marking, Imprinting

Catalog of package-coding, marking, and imprinting machines is in form of file folder, so you can add more data on subject. Includes "Package Imprinting Selector" that tells you type of imprinter to use for every kind of package and operational sequence. *Adolph Gottscho*

Circle **303** on Reader Service Card



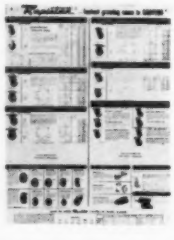


Chart for Selecting Casters

Wall chart features the 5 caster series standard in the industry. Tells what you use the caster for, load limits, installation data, bolt hole spacings, wheel properties, sizes. Helps you pick replacement casters and wheels. On washable paper, 22 x 29 in. *Rapids-Standard Co., Inc.*

Circle **304** on Reader Service Card

Flexible Monorail Dips

"Limber-Dip" sections enable you to raise or lower whole lengths of your monorail conveyor, while conveyor operates. You can use or bypass a dip tank, lower conveyor gradually as stack of material being loaded on it goes down, etc. Bulletin shows photos of applications, gives diagrams, specifications. 2 p. *Dearborn Fabricating and Engineering*

Circle **305** on Reader Service Card

System Approach to Controls

Six-page folder describes planning, gives pictures of units for electrical controls of complete systems. For bulk material conveying systems, packaging lines, production units and conveyors working together and powered by variable speed drives. Manufacturer's service includes design, engineering. *Semco Electric Controls*

Circle **306** on Reader Service Card

Brave New World

Another wonderful catalog from General Mills illustrating their mechanical arms, track-mounted seabottom robot manipulators, and other frontier products. Along with this, some everyday equipment, such as forging billet and foundry ladle manipulators, and a neat little electric hoist that weighs only 15 lb., lifts 500 lb. eleven feet at 4 f.p.m. Bulletin 6B135, 2 colors, 24 p. *General Mills*

Circle **307** on Reader Service Card

How to Buy a Fork Lift Truck

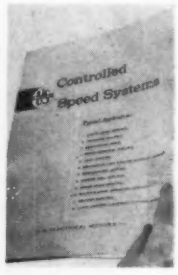
"Handling Materials" lists factors to consider when you buy a fork lift truck. Includes capacity, mast design, accessories, other details that affect operating economy. *Towmotor Corporation*

Circle **308** on Reader Service Card

Air Control Equipment

Every item in maker's line of air and hydraulic equipment is in this catalog — valves, cylinders, pressure regulators, hose couplers and fittings, etc. Gives information on flow rates, operating pressures. Color indexed for quick use. Catalog 125, 2 colors, 48 p. *A. Schrader's Son, Div. of Scoville Mfg. Co.*

Circle **309** on Reader Service Card



Automatic Speed Control

"Controlled Speed Systems" describes 12 ways to control speed automatically by controlling driving motors. You can hold speed constant, or change it as some other variable changes. Equipment can be used on conveyor drives, range drives, etc. Bulletin F-1952, 2 colors, 8 p. *U. S. Electrical Motors, Inc.*

Circle **310** on Reader Service Card

Cellulose Cushioning

Eight case histories demonstrate how cellulose fiber cushioning lowers packaging cost. Pads protect product against impact, also insulate and prevent freezing. Case histories and description of product in folder. *Wood Conversion Co.*

Circle **311** on Reader Service Card

Clamp Trucks

Clamp trucks save time over ordinary hand trucks because you don't have to work the truck nose under the crates or boxes you are moving. Catalog describes full line of clamp trucks, and their special features such as toe-tip clamp control. 8 p. *Food Machinery and Chemical Corp.*

Circle **312** on Reader Service aCrd

Continued on page 87

READER SERVICE CARD

Material Handling Engineering

Card Invalid Without Company Name

OCT. 1961 — Do not use after Jan. 15, 1962

NAME _____ TITLE _____

COMPANY _____ KIND OF BUSINESS _____

ADDRESS _____ NO. OF EMPLOYEES _____

CITY _____ ZONE _____ STATE _____

ADVERTISERS

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

COST CUTTING IDEAS

250 261
251 262
252 263
253 264
254 265
255 266
256 267
257 268
258 269
259 270
260 271

301	313	325	337	349	361	401	413	425	437	449	461
302	314	326	338	350	362	402	414	426	438	450	462
303	315	327	339	351	363	403	415	427	439	451	463
304	316	328	340	352	364	404	416	428	440	452	464
305	317	329	341	353	365	405	417	429	441	453	465
306	318	330	342	354	366	406	418	430	442	454	466
307	319	331	343	355	367	407	419	431	443	455	467
308	320	332	344	356	368	408	420	432	444	456	468
309	321	333	345	357	369	409	421	433	445	457	469
310	322	334	346	358	370	410	422	434	446	458	470
311	323	335	347	359	371	411	423	435	447	459	471
312	324	336	348	360	372	412	424	436	448	460	472

Do you wish to continue to receive MATERIAL HANDLING ENGINEERING each month ☐ Yes ☐ No

Card Invalid Without Company Name

OCT. 1961 — Do not use after Jan. 15, 1962

NAME _____ TITLE _____

COMPANY _____ KIND OF BUSINESS _____

ADDRESS _____ NO. OF EMPLOYEES _____

CITY _____ ZONE _____ STATE _____

ADVERTISERS

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

COST CUTTING IDEAS

250 261
251 262
252 263
253 264
254 265
255 266
256 267
257 268
258 269
259 270
260 271

301 313 325 337 349 361 401 413 425 437 449 461
302 314 326 338 350 362 402 414 426 438 450 462
303 315 327 339 351 363 403 415 427 439 451 463
304 316 328 340 352 364 404 416 428 440 452 464
305 317 329 341 353 365 405 417 429 441 453 465
306 318 330 342 354 366 406 418 430 442 454 466
307 319 331 343 355 367 407 419 431 443 455 467
308 320 332 344 356 368 408 420 432 444 456 468
309 321 333 345 357 369 409 421 433 445 457 469
310 322 334 346 358 370 410 422 434 446 458 470
311 323 335 347 359 371 411 423 435 447 459 471
312 324 336 348 360 372 412 424 436 448 460 472

Do you wish to continue to receive MATERIAL HANDLING ENGINEERING each month ☐ Yes ☐ No

MHE IS NOW ADDRESSED LIKE THIS:

IT SHOULD BE CHANGED TO THIS:

MAJOR PRODUCTS MANUFACTURED OR TYPE OF BUSINESS AT THIS ADDRESS _____

MY JOB TITLE _____

SIGNATURE _____

Was this copy of MATERIAL HANDLING ENGINEERING correctly addressed? If not, use this card to give us your complete mailing address plus the old (incorrect) one.

FIRST CLASS
PERMIT NO. 8066
CLEVELAND, OHIO

NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

BUSINESS REPLY MAIL

POSTAGE WILL BE PAID BY:

MATERIAL HANDLING ENGINEERING
812 Huron Road
Cleveland 15, Ohio

FIRST CLASS
PERMIT NO. 8066
CLEVELAND, OHIO

NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

BUSINESS REPLY MAIL

POSTAGE WILL BE PAID BY.

MATERIAL HANDLING ENGINEERING
812 Huron Road
Cleveland 15, Ohio

FIRST CLASS
PERMIT NO. 8066
CLEVELAND, OHIO

NO POSTAGE STAMP NECESSARY IF MAILED IN UNITED STATES

BUSINESS REPLY MAIL

POSTAGE WILL BE PAID BY:

MATERIAL HANDLING ENGINEERING
812 Huron Road
Cleveland 15, Ohio

FOR YOUR CONVENIENCE . . .

to receive further information about products described in this issue, circle the indicated number on the card.

READER SERVICE CARD

Material Handling Engineering

BULLETINS CATALOGS FILMS

Total System Planning

Booklet explains new data handling system, Philco 2400. Tells why system lowers costs, increases productive time in data processing. *Computer Div., Philco Corp.*

Circle **313** on Reader Service Card

Handling Ideas

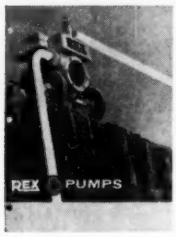
Big, plain pictures and quick, complete captions tell you fifty ways Barrett hand and powered trucks are used to handle materials. Most fascinating: driverless tractor guided by colored tape on factory floor. Runner-up: radio-controlled tractor obeying signals from little pushbutton box on belt of stockpicker. Bulletin 552, 16 p. *Barrett-Cravens Co.*

Circle **314** on Reader Service Card

Centrifugal Pumps

Self-priming centrifugal pumps have patented air peeler that maintains efficiency for life of pump. Models with capacities from 5,000 to 90,000 g.p.h. described in Bulletin 61AGC-P, 4 p. *Chain Belt Company*

Circle **315** on Reader Service Card



Booklet on LP-Gas

"Save More Money" explains LP-gas, what advantages this fuel has for industrial truck operation, and tells about maker's line of LP-gas carburetion systems. Two colors, 6 p. *Century Gas Equipment Co.*

Circle **316** on Reader Service Card

Level Control

Controls report levels of material in tanks and bins holding liquids, molten metals, and solids such as coal, cement, sand, sugar. They work on proximity switch principle. Folder explains construction, gives model selection chart, dimensional diagrams. Two colors, 4 p. *Fielden Electronics*

Circle **317** on Reader Service Card

Continued on page 89

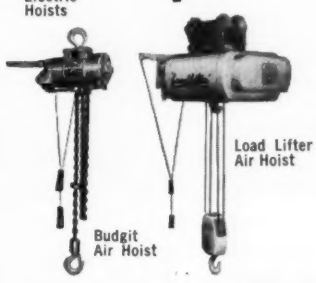
Lifting Made Easy

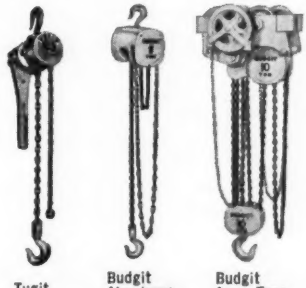
HOISTS AVAILABLE FOR EVERY LIFTING JOB

1✓ ELECTRIC HOISTS for frequent lifting with pace setting speed

2✓ AIR HOISTS to lift fast where atmosphere conditions are hazardous, corrosive, extremely hot, dirty or wet

3✓ CHAIN BLOCKS for easy lifting where the work cycle is moderate





ELECTRIC HOISTS

P:B Budgit® Electric Hoists. 1/8 to 2 tons. Modern push-button hoists for regular service. Portable. Two fully enclosed automatic brakes. Spotting action is fast, accurate. 1/2-ton load can be lifted at 34 FPM. Hook suspension. Trolleys available. Standard models for intermittent service — AC, DC, and 12-volt battery types — have pull cord control.

Load Lifter® Electric Hoists. 1/2 to 15 tons. For heavy-duty and production line service. Safe 24-volts at the push button. Single and 2-speed control. A ton can be lifted at 60 FPM. Two automatic brakes. Types for lug or hook suspension; also with push, hand-geared or motor-driven trolley. Hi-hook model increases length of lift.

AIR HOISTS

Budgit® Air Hoists. 1/4, 1/2 and 1 ton. Compact, lightweight hoists for regular lifting service. Link and roller chain types. Explosion proof motor. Spark and corrosion resistant link chain models. Speeds infinitely variable to 75 FPM. Pull cord control. Safety hooks standard. Rigid mount type and push trolley available.

Load Lifter® Air Hoists. 1 to 15 tons. Wire rope type for heavy-duty service. Five cylinder motor for smooth operation at all speeds. Speed infinitely variable to 37 FPM. Pull cord control standard; throttle control available. Mechanical load brake adjusts itself. Lug, push trolley, and hand-geared trolley suspension.

CHAIN BLOCKS

Tugit® . . . the Lever-Operated Hoist. 3/4 to 3 tons. Light. Compact. Portable. Operates easily at any angle even in close quarters. Has countless uses in every industry. Spur-geared for highest efficiency. A 42-lb. pull on the handle lifts 2 tons. Spark and corrosion resistant models.

Budgit® Chain Blocks. 1/4 to 10 tons. For production or maintenance. Combine light, strong aluminum frame with spur-geared lifting and automatic load brake. 25 lb. pull on hand chain lifts 1/4 ton. Hook suspension standard. Trolleys available. Army-type Budgit has integral trolley that can be adjusted to fit several sizes of I-beams and permits high hook lift. Ask about spark and corrosion resistant models.

SOLVE YOUR LIFTING PROBLEMS. Call your nearby Shaw-Box Distributor for practical help in selecting the best type of overhead load handling equipment — hoist or crane — for each task. Or, write us for literature.

D

MANNING MAXWELL & MOORE INC. M&M TRADE MARK

OVERHEAD LOAD HANDLING EQUIPMENT

Products of

MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario.

Circle **83** on Reader Service Card

in this issue, circle the indicated number on the card.

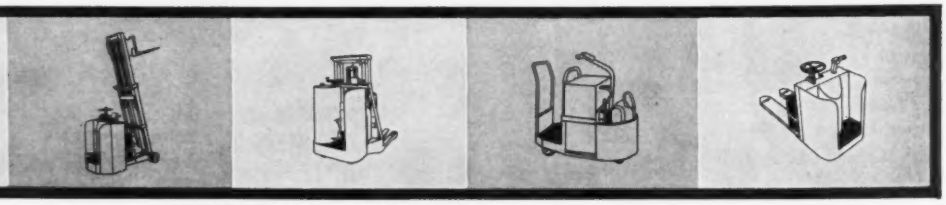
MOTO-TRUC...for high stacking or high volume

Moto-Truc brings you top handling efficiency with a model for every job. Whether it's high stacking in narrow aisles, or long haul movement of high volumes from receiving dock to production line—Moto-Truc has the walkie or small rider truck best for you. Moto-Truc is economical to buy and ruggedly built to give dependable service. Its simple design reduces maintenance costs, insures long life on the toughest of your jobs.

The MOTO-TRUC Company

12403 TAFT AVENUE • CLEVELAND, OHIO

World's Largest Manufacturer of Small Rider Trucks



Circle 87 on Reader Service Card

BULLETINS CATALOGS FILMS

Foamed Plastic Cushioning

Rigid urethane foam, shaped to your product, makes packaging faster, saves shipping cost, prevents damage. Bulletin illustrates applications to china, glass, instruments, appliances, etc. Two colors, 1 p. *H. E. Werner, Inc.*

Circle **318** on Reader Service Card

Blower Units

Each high and low pressure blower unit includes positive displacement blower, air filter, motor, check valves, pressure gages, V-belt drive, guard, and base. They are used for pneumatic conveyors and air chutes. Bulletin describes construction, gives dimensions, capacities for 6 models. Two colors, 4 p. *Systems Engineering and Manufacturing Co. Inc.*

Circle **319** on Reader Service Card

Vibratory Handling

Condensed catalog shows maker's full line of vibratory material handling equipment, for bulk materials and parts. Also includes shaft seals, powered tools, power rectifiers. 200 illustrations. Catalog 616. *Syntron Co.*

Circle **320** on Reader Service Card

Pump Moves Powdery Solids

Pump uses air to fluidize and move powdery solids such as cement, fly ash, hydrated lime, so you can convey them pneumatically. Works on less than 15 p.s.i. air. Has built-in discharge control. Bulletin FHP-1 explains operation, gives dimensions. 2 p. *Fuller Co.*

Circle **321** on Reader Service Card

Do-It-Yourself Racks

"Creative Framing" tells you how to use do-it-yourself kits to design and set up your own storage racks. Versatile slotted angles can be used to build racks, shelves, bins, even carts, benches, and tables. Manufacturer's field engineers help you plan your installation. Bulletin AD-410, 2 colors, 24 p. *Acme Steel Co.*

Circle **322** on Reader Service Card

Construct Stronger, Lighter

Engineers designing equipment will be interested in "New Concepts in Steel Design and Engineering." Discusses in engineering terms "fourth dimension" concept of using constructional alloy steels to reduce weight, increase strength. Also covers effect of residual stress and out-of-straight condition on column strength, and new alloys with yield points approaching 300,000 p.s.i. Booklet ADUCO 04004, 2 colors, 60 p. *U.S. Steel Corp.*

Circle **323** on Reader Service Card

Controls Liquid Flow

Chem-O-Feeder meters small amounts of chemical solution into main stream of liquid. Can feed at rates proportional to main stream flow, put out .08 to .95 gal. per hour. Works on air or water pressure (10 to 70 p.s.i.). Corrosion resistant. Bulletin describes construction, functioning. 2 p. *B-I-F Industries*

Circle **324** on Reader Service Card

Hopper Filler

Folder explains screw conveyor hopper filler unit. It features a progressive pitch screw flight that moves material without packing. Unit has A-frame support, motor drive, raises material at steep angle through large diameter tube, fully enclosed. *Worley Equipment, Inc.*

Circle **325** on Reader Service Card

Fibre-Glass Tote Boxes

Bulletin illustrates new line of tote boxes and trays made of fibre-glass-reinforced plastic resin. They nest, stack. Have high resistance to corrosion, are light. Obtainable in colors, which may be used as department or use code. Standard dimensions for 7 models given, and maker offers design service for special sizes and shapes. *Apex Reinforced Fibre-Glass Div., White Sewing Machine Corp.*

Circle **326** on Reader Service Card

Use and Care of Tying Machines

"Maintenance Manual and Parts Catalog" for tying machines includes directions for installing, a trouble-shooting section, and explanation of mechanically tied knots. Clearly illustrated. Two colors. *B.H. Bunn Co.*

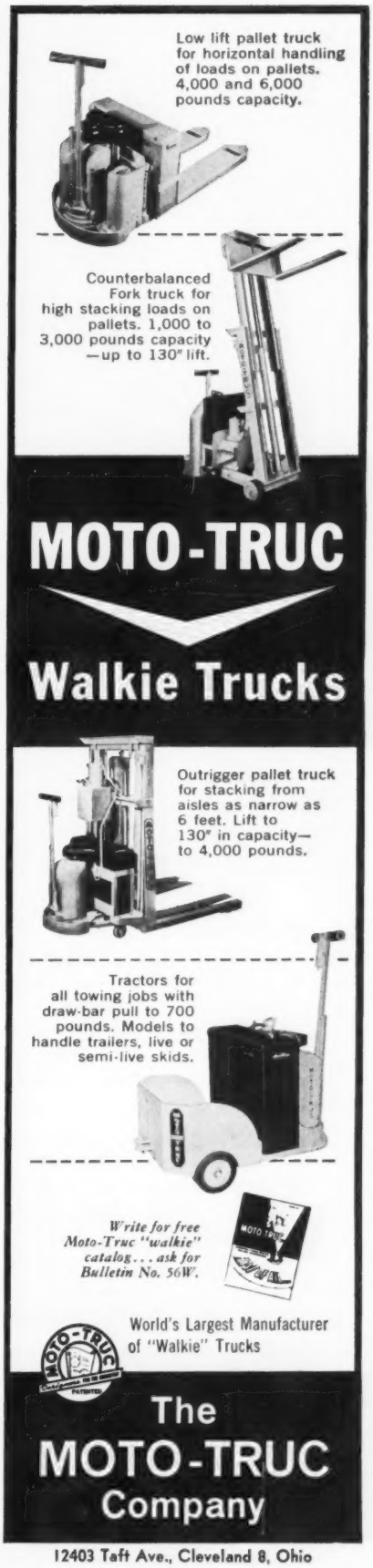
Circle **327** on Reader Service Card

More Amp.-Hrs. From Bats.

New series of batteries has 11 percent more capacity (in ampere hours) without increase of size. Folder explains why: square tube positive plates have more volume, 26 percent more exposed area. Table compares new TGS battery capacity with other models. Bulletin 6537, 4 p. *Exide Industrial Div., Electric Storage Battery Co.*

Circle **328** on Reader Service Card

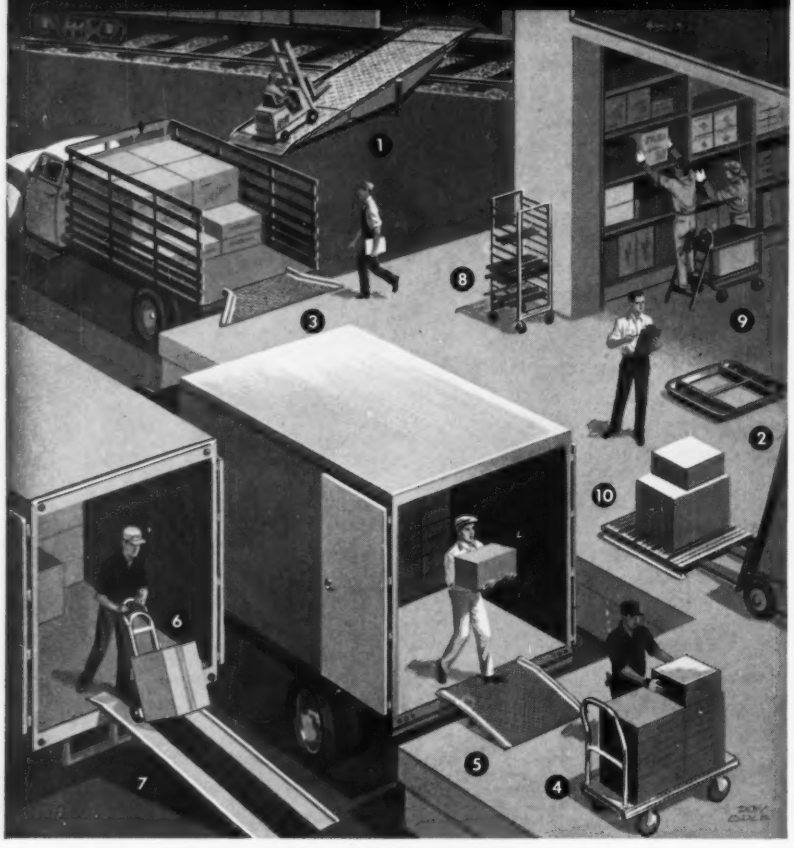
Continued on page 90


Low lift pallet truck for horizontal handling of loads on pallets. 4,000 and 6,000 pounds capacity.
Counterbalanced Fork truck for high stacking loads on pallets. 1,000 to 3,000 pounds capacity —up to 130" lift.
MOTO-TRUC
Walkie Trucks
Outrigger pallet truck for stacking from aisles as narrow as 6 feet. Lift to 130" in capacity— to 4,000 pounds.
Tractors for all towing jobs with draw-bar pull to 700 pounds. Models to handle trailers, live or semi-live skids.
Write for free Moto-Truc "walkie" catalog . . . ask for Bulletin No. 56W.
World's Largest Manufacturer of "Walkie" Trucks
The MOTO-TRUC Company

12403 Taft Ave., Cleveland 8, Ohio

Circle **88** on Reader Service Card

10 REASONS WHY B & P IS GROWING, GROWING, GROWING!



1. **FOLDING YARD RAMP:** Takes half the space–moves easier–stores in less space.
2. **PALLET DOLLY:** For a short haul–a must for production lines or warehousing.
3. **DOCKBOARDS:** Built especially for *your* dock–one piece curb with forged ends.
4. **PLATFORM TRUCK:** Light–eye appealing–rugged.
5. **ECONOBORD:** Carries loads to 4800 lbs.–truckers special.
6. **HAND TRUCKS:** Light–rugged–versatile–forged ribbed nose plate.
7. **PORT-A-RAMP:** No dock needed–deliver anywhere–safety all weather walk.
8. **ECONORAK:** All purpose–assemble yourself–economical.
9. **STOCK PICKING TRUCK:** Reaches high areas easily, safely–ladders available for your present trucks.
10. **PALLET:** Built to *take it*–assemble yourself (if you wish).

Dealers coast to coast to–survey *your* problems–analyze *your* needs–recommend *proper* equipment

Write today for more information on any of the above products.

b+p **BROOKS & PERKINS, INC.**
1938 W. Fort Street • Detroit 16, Michigan
Tel. TA 5-5900
ALUMINUM–MAGNESIUM–STAINLESS STEEL

Offices in: Washington–New York–Dayton–Boston–Long Beach, Calif. 61-MH-8

Circle **12** on Reader Service Card

BULLETINS CATALOGS FILMS

Two-Ton Stand-Up Truck

New electric outrigger fork lift stand-up truck raises 4,000 lb. to 139 in., 3,400 lb. to 184 in. Features one-hand control 3 forward speeds, reverse, and lift. Specifications, dimensional drawings, and data on aisle widths required, in Bulletin 6706-AR, 4 p. *Automatic Transportation Co.*

Circle **329** on Reader Service Card

Magnetic Conveyor Hangers

Magnets hold parts to hangers of overhead monorail conveyors. This speeds handling because you don't have to fumble with hooks and loops or holes. Bulletin describes hangers, applications, special permanent magnets used. 2 p. *Eriez Mfg. Co.*

Circle **330** on Reader Service Card

Hydraulic Control Valve

Catalog sheets present engineering data on directional control valve with 5 spools. Valve has integral pilot-operated relief. Can be used on material handling equipment to control raising, positioning, rotating, etc. Maximum operating pressure: 2,000 p.s.i. Data on dimensions, pressure drop, etc. in Sheets 1552A 10, 1522A 15. *Parker-Hannifin Corp.*

Circle **331** on Reader Service Card

Rubber Bumpers, Fenders

Rubber bumpers and fenders can protect your loading platforms, door posts, docks, vehicles, truck tailgates, *if* you know the right size and shape to absorb the impacts. This bulletin gives you load-deflection and energy absorption tables, so you can pick rectangular or cylindrical bumpers that fit your bumps. Bulletin H-24, 2 colors, 4 p. *Hewitt-Robins*

Circle **332** on Reader Service Card

Chip Disposal

Automatic removal of hot, wet or dry chips, scrap, turnings, with hinged-plate conveyor unit. Folder pictures unit in many installations, showing how it can be fabricated in any shape to fit your needs. Gives specifications for standard models, widths from 6 in. to 3 ft., speeds from 6 f.p.m. to 50 f.p.m. Bulletin MF 650-A, 4 page. *May-Fran Mfg. Co.*

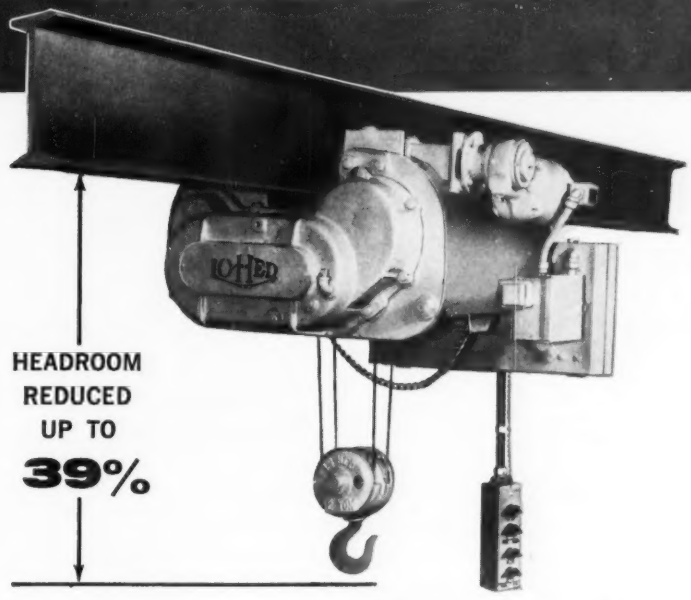
Circle **333** on Reader Service Card

Continued on page 92

NEW!

LO-HED HOISTS GIVE YOU MORE WORKROOM THAN EVER BEFORE

Lo-Hed Hoists, which for over 40 years have featured the lowest headroom in the industry, now reduce headroom even more with a remarkable new design by AE Industrial Division's engineering team. This great new increase in workroom is available in Lo-Hed's plain, hand-geared and motor driven trolley hoists.



			DC POWERED	AC POWERED
3 TON	6" less	NOW →	16"	13"
5 TON	8½" less	NOW →	19½"	16½"
6 TON	8½" less	NOW →	20½"	17½"
10 TON	15½" less	NOW →	27½".	24½"

This improved headroom is available with no reduction in other LO-HED plus qualities which give you long, trouble-free service.

HIGH SAFETY FACTOR • STEEL TROLLEYS • CAST STEEL DRIVE WHEELS • TAPER ROLLER BEARINGS
STRAIGHT LINE SPUR GEAR DRIVE • AUTOMATIC HOLDING & LOWERING BRAKE

Representatives in all principal cities

Call our representative in your area for information on: "How to select the proper hoist to meet your needs" and "Five things to consider before you buy that hoist."

AE INDUSTRIAL DIVISION

AIRCRAFT ARMAMENTS, INC.
Post Office Box 6853, Baltimore 4, Maryland

CLEVELAND DISTRICT: A. E. Company, 1157 Leader Bldg., Cleveland 14, Ohio

N. Y. DISTRICT: AE Industrial Division, 1 Exchange Place, Jersey City 2, N. J.

Circle 8 on Reader Service Card

MODERNIZE with

America's most Modern Truck . . .

HydroLectric

A GREAT NAME IN LIFT TRUCKS

Featuring the exclusive
Dyna Dual Power Unit
that is interchangeable on all models

PUT THESE MODERN FEATURES TO WORK GREATER PROFITS AT NO ADDITIONAL COST

- Two driving wheels instead of one
- Braking with handle in any position
- Automatic parking brake (optional)
- Sealed alloy gears instead of chains
- Sealed ball-bearing rollers in masts
- 100% more steering ease with two wheel drive
- Power unit removal complete in 20 minutes
- Greater tire capacity equivalent load ratings

Write for Bulletin K H L

LIFT TRUCKS INC. W.W.W. STUEBING CINCINNATI

A TRUCK FOR EVERY PURPOSE AND MATERIAL

Circle **71** on Reader Service Card

BULLETINS CATALOGS FILMS

Mixer Stores and Conveys

Ribbon mixer mounted on wheels mixes, stores, and conveys a variety of materials. Complete with motor and drives. Read about it in Bulletin M/1058A, 12 p. *Young Machinery Co., Inc.*

Circle **334** on Reader Service Card

Pallets for Greengrocers

How to handle apples and onions, potatoes and peanuts, using pallets, told in "Efficient Handling of Produce." Folder covers pallet size, loading patterns (not the same for apples as for onions!), stacking heights, temperatures, types of lift truck to use. Bulletin 505-1, 2 colors, 6 p. *Lewis-Shepard Products Inc.*

Circle **335** on Reader Service Card

Automatic Scrap Removal

Systems handle scrap cheaper, according to bulletin which shows how conveyors, chutes, elevators, and bins combine to make scrap handling systems. Tells how one plant saved 800 manhours a day, another gained 15 percent of its space for production. Bulletin 7528, 2 colors, 4 p. *Gifford-Wood Co.*

Circle **336** on Reader Service Card

Conveyor Traffic Cop

"Traffic Cop" is a mechanical control that prevents traffic jams where conveyors join. Arms automatically allow packages or parts to move on one section, or on the other, thus prevent collisions. Pictures and diagrams explain how it works. Bulletin TC-2, 2 p. *Island Equipment Corp.*

Circle **337** on Reader Service Card

Gearmotors

Bulletin describes in-line gearmotors rated at 1/20 and 1/12 h.p., and right-angle gearmotors rated at ¼, ⅓, ½ h.p. Bulletin 1300 G.H. 2 colors, 2 p. *Ohio Electric Mfg. Co.*

Circle **338** on Reader Service Card

Selecting Locomotives

Report tells how to choose your industrial locomotive. Explains factors involved, gives quick-reference tables. Cites actual cases illustrating how industrial users make their selection. *Plymouth Locomotive Works.*

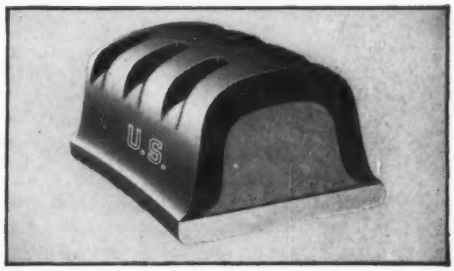
Circle **339** on Reader Service Card

Continued on page 94

CUSHIONED shock-absorbent inside TOUGH cut-resistant outside

CHOICE OF LEADING INDUSTRIAL TRUCK MAKERS FOR SOFT RIDE, HARD WEAR—U.S. ROYAL INNACUSH!

Material-handling equipment manufacturers who know most about industrial tires prefer U.S. Royal Innacush. They realize this great U.S. Royal has the only successful two-stock construction. Fully cured cushioned stock inside stays soft for the life of the tire. Don't let substitutes fool you—tires with semi-cured cores harden in use, lose their cushioning. Tough-tread stock outside to defy cuts, shrug off floor hazards. Users have found U.S. Royal Innacush actually *doubles* wear life, saves money like no other industrial tire. Try it yourself, in pressed-on or demountable type.



Don't forget to specify "U.S. ROYAL" on your new equipment.

U.S. ROYAL SAFETY 1st TIRES

United States Rubber

Rockefeller Center, New York 20, New York

Mr. W. J. Shalley
Industrial Tire Dept., U.S. Rubber
Rockefeller Center, New York 20, N. Y.
Please rush me your complete industrial tire manual.

Name_____

Address_____

City & State_____

Circle **124** on Reader Service Card

Circle **28** on Reader Service Card

Silicone
lubricants
survive
oven heat
Heat up to 550 F — 750 F intermittently — won't cause Dow Corning silicone lubricants to thin out, bleed or oxidize. Silicone oils and greases help assure trouble-free operation of ball bearings in any use. For complete information, write Dow Corning Corporation, Midland, Michigan, Dept. 7322
FREE SAMPLE
Dow Corning

BULLETINS CATALOGS FILMS

Portable Gravity Conveyors

Light, strong, standardized conveyor sections, with switches, curves, and supporting stands, enable you to set up systems quickly, make changes easily. Catalog describes roll and wheel types, includes dimensions, weights. Pictures show units in use. Bulletin 15, 2 colors, 8 p. *E. W. Buschman Co.*

Circle **340** on Reader Service Card

Wire Tote Bins

You can store, clean, move parts and components in wire or expanded metal tote bins, without taking of the tote. Bins lock together when stacked, at both ends and sides, making it easy to handle load on pallet or skid. Illustrations in bulletin show more than a dozen designs. Two colors, 2 p. *Mid-West Wire Products Co., Inc.*

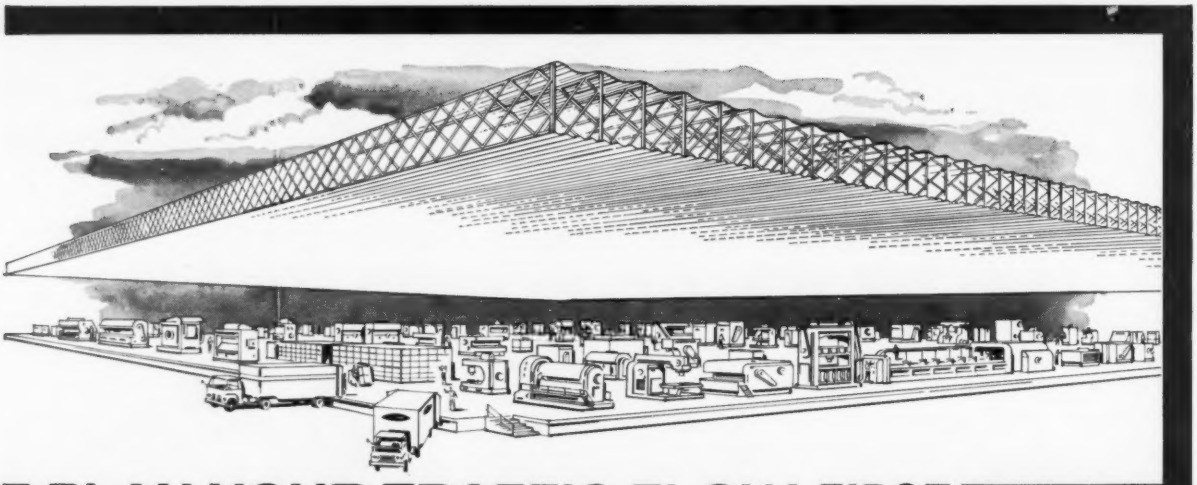
Circle **341** on Reader Service Card

Cuts Labor Cost Ninety Percent

It costs 75¢ to have a man with pushbroom sweep 1,000 sq. ft., but a heavy duty power sweeper can do it for 7½¢. All information about use, construction, features, and specs of floor sweeper that does the job given in Bulletin 786, 2 colors, 4 p. *Clarke Floor Machine Co.*

Circle **342** on Reader Service Card

Continued on page 96



PLAN YOUR TRAFFIC FLOW *FIRST*

Efficient material handling starts with the floor plan. Forget about the roof and the walls. Lay out your traffic plan, assembly lines, storage and handling space—exactly as you need them. Plan on 50 to 1000 feet of clear-span space—any desired height.

Build for the present and the future, with complete space freedom with the new Behlen Panl System—a self-framing building—all steel with any combination of steel, brick, stone or cement walls. Easy to expand and maintain.

DUBL-PANL™ ROOF CEILING—the secret of Behlen's wide-span interior space. The top chord forms the roof, the bottom chord is the ceiling. Diagonal struts transfer vertical loads into axial stresses. Behlen roof-ceiling systems can be designed for any live-load requirement.

Free Planning Service We will send free literature and tell you how Behlen engineers can work with your building committee, architect and builder at no extra cost. Write,

Building Division, Dept. MH-10 Behlen Mfg. Co., Columbus, Nebraska

BEHLEN Steel

Circle **15** on Reader Service Card

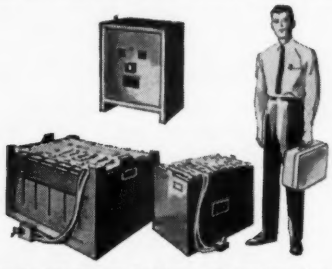
EXIDE POWER PACKAGE

Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa. (ESB)

HOW MUCH EXTRA BATTERY LIFE CAN YOU GET?

You may be getting good battery life now. But the fact is that almost every battery can give better life if certain rather simple conditions are met.

Helping you to get maximum life, and therefore greatest economy, from your batteries is part of the Exide Power Package. The first step is selecting the particular type and capacity battery to fit the job. Your Exide man will recommend a battery capable of providing adequate power without the need for deep discharging. Knowing how to do this accurately is part of his special skill.



The Exide Power Package: Broadest choice of all types of batteries and chargers to meet all requirements, plus factory-quality service for both batteries and chargers.

To meet your particular requirements, he can draw from the broadest line of batteries for industrial truck power, including Exide-Ironclad with tubular positive plate construction; Exide-Powerclad premium pasted plate; and the improved Exide nickel-iron-alkaline (invented by Thomas A. Edison).

Second, it is important that the charger be able to recharge the battery completely within the allotted time, and at the desired rate. If a battery isn't adequately charged, it loses efficiency and its power output is reduced. At the same time, you must guard against overcharging too. Play safe. Ask your Exide man to recommend the right size and type Exide charger when you buy your Exide battery.

Third, make sure your batteries receive good upkeep. This involves more than just routine cleaning and watering. It means periodic inspection and checking by battery maintenance engineers. Exide service men will help you set up good battery maintenance schedules. They will diagnose problems which might develop—show you whether the cause is in the truck, the charger, the application, or the maintenance. And they will take care of any repairs or adjustments to batteries or chargers which might be called for. You get complete battery and charger service from one source, fast, thorough, dependable.

The combined effects of these three basic parts of the Exide Power Package mean not only longer battery life, but greater battery economy year after year. Find out exactly how you can benefit. Write Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Simplified electricity bulletin. Do you want to know how storage batteries work and what goes on as they charge and discharge? Send for this detailed bulletin. It's yours free. Also contains tips on how to keep batteries in top operating condition.

Exide®

Circle 34 on Reader Service Card

Circle 13 on Reader Service Card

THE BEST BUY
for light use

Buschman
No. 138
ROLLER CONVEYOR
12" & 18" WIDTHS

AVAILABLE FROM STOCK

Immediate delivery 5' & 10' long portable straight and curved sections in 2 standard widths. Other widths 6" to 30" made to order.

Only Buschman has so many superior features in one conveyor

- ★ **Spring-O-Matic Axles,** ¼" hex for fast positioning of rollers
- ★ **Galvanized Roller,** rust resistant, lively, free-running; rounded ends
- ★ **Zinc Plated Bearings,** integral type rated at 80 lbs. capacity
- ★ **Quick-Eez Couplings,** setup is a snap. Both ends are the same
- ★ **Galva-Finish Frames,** protection at sheared edges, welded joints, punched holes
- ★ **Easy-To-Change Roller Spacing,** on increments of 1½" centers for complete adaptability

And Buschman has *in stock* a complete range of roller and wheel conveyors for light, medium and heavy duty.

For complete information write THE E. W. BUSCHMAN COMPANY
4450 Clifton Avenue, Cincinnati 32, Ohio

Buschman CONVEYORS

376

BULLETINS CATALOGS FILMS

Storage Rack Ideas

Standard adjustable racks, special racks for use with stacker cranes, and mobile storage racks which roll on wheels or overhead tracks described in 12-page bulletin. Mobile racks reduce aisle space requirement 30 percent if you use lift trucks. *Chicago Tramrail Corp.*

Circle **343** on Reader Service Card

Wire Cloth, Conveyor Belts, Slings

Comprehensive catalog gives lots of information about wire cloth, wire filters, woven wire conveyor belts, bare wire and neoprene- or plastic-coated slings. Includes data on uses, how to order, glossary, weaves, specifications, metals used and special heat-resisting alloys, reference information. Indexed. Two colors, 102 p. *Cambridge Wire Cloth Co.*

Circle **344** on Reader Service Card

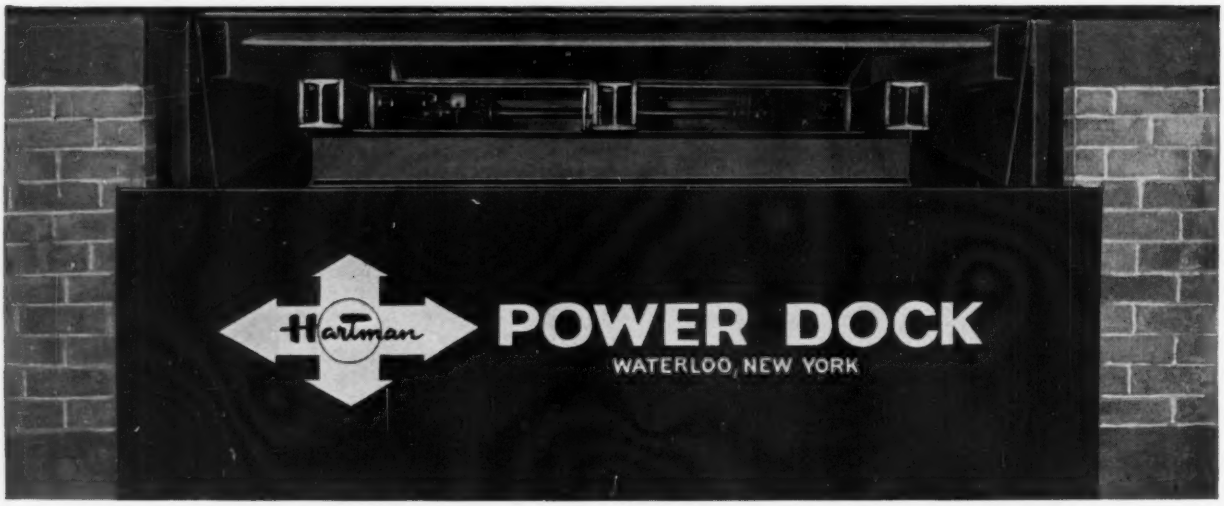
Versatile Crane Carrier

Model 60RM2 carrier hauls 6,000 lbs. on its crane, or 8,000 lb. on its deck. You drive it around like an automobile. Rear wheel steer gives short turning radii – 5 ft. 3½ in. inside, 13 ft. 10½ in. outside. Crane boom telescopes, 16 ft. to 6 ft., rotates 360 degrees. Bulletin MH 600, 2 colors, 4 p. *Drott Mfg. Co.*

Circle **345** on Reader Service Card

Continued on page 98

What makes this dock so different?

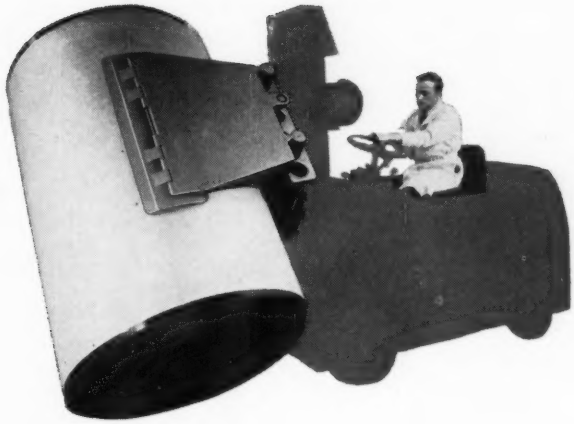


THE HARTMAN POWER DOCK is unlike any other dock on the market today. Superbly engineered to save manpower, prevent damage to truck or load, handle highway carriers swiftly, efficiently. **Exclusive Retractable Lip** extends 30" to truck bed, eliminates need for attendant, permits closing overhead doors; **Push-Button Control** raises-lowers deck, extends-retracts lip at touch of a button; **Electro-Mechanical Power** for all-weather, maintenance-free operation; **Completely Safe**—automatically locks if truck pulls away. Capacity: 10 tons. FREE BULLETIN on Power Dock—send for it.

ATTENTION REPRESENTATIVES
Several territories still available.
Write for full details.

Hartman
METAL FABRICATORS, INC.
1224 Main St., Waterloo, N.Y.

Circle **53** on Reader Service Card



Compact clamp to handle heavier rolls? The answer is "yes" from Cascade.—Entirely new C5P Revolving Paper Roll Clamp.—Sold through all lift truck manufacturers and their authorized dealers.—A lighter yet stronger clamp to handle rolls up to 60 inches and up to 5000 lbs. —Many new Cascade design features not found in previous makes or models.—Exclusive nylon-bushed arm carriers improve performance, eliminate lubrication worries.—Better strength-to-weight ratio. New integral, box-type arm construction.—Use the C5P for a bigger pay load with a smaller, less costly truck.—A variety of arm combinations and other options.—Better designs are developed by Cascade because—

The business end of a lift truck is our business.

CASCADE MANUFACTURING CO.

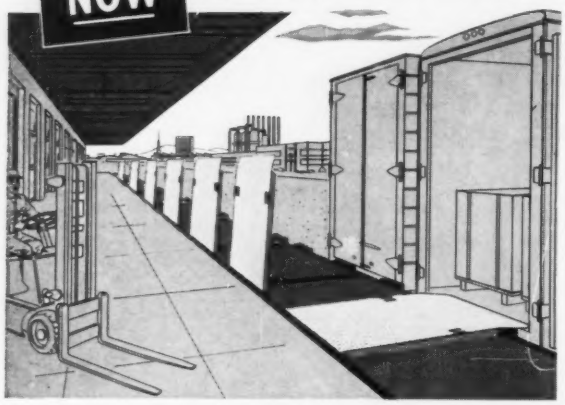
cascade

Sales and General Offices: P. O. Box 7587, Portland 20, Ore. Plants: Portland, Oregon; Springfield, Ohio; Amsterdam, The Netherlands.

Circle 25 on Reader Service Card

Circle **73** on Reader Service Card

NOW a low-priced manual DOCK LEVELER



FOR TRUCK TERMINALS, other multiple installations

RITE-HITE model **666**

6-TON CAPACITY • 6'x6' PLATFORM

Simple design, rugged construction — no maintenance. Easy to operate. You'll want full details.

MH-101

RITE-HITE DIVISION

LOOMIS MACHINE COMPANY

133 EAST FOURTH STREET, CLARE, MICHIGAN

BULLETINS CATALOGS FILMS

Analyze Industrial Truck Costs

"A Practical Approach" gives you forms, basic figures, and procedure to enable you to analyze the cost of operating your industrial trucks, and to compare costs using gasoline-powered or electric trucks. *Exide Industrial Div., Electric Storage Battery Co.*

Circle **346** on Reader Service Card

Lease Trucks, or Buy?

A new edition of "Truck Fleets; Lease or Buy? an analysis of truck transportation costs." Includes new data, from survey covering highway truck fleet operations of more than 4,500 corporations, and of leasing plans offered by national organizations. Helps you decide when it is more profitable to lease. Thirty-two pages. *Foundation for Management Research*

Circle **347** on Reader Service Card

Convey on Nylon Wheels, or Aluminum Rollers

Folder gives specifications, sizes, prices for: light duty, low weight conveyor, with nylon wheels, nylon bearings; medium duty, low weight model, with aluminum rollers, nylon bearings; faster modifications of either with steel ball bearings. *Harry J. Ferguson Co.*

Circle **348** on Reader Service Card

Continued on page 100

DO YOU CONDUCT PLANT TOURS FOR THE PUBLIC?

Many plants throughout the country conduct tours for organizations as well as the general public. Many of these plants have the equipment furnished in stainless steel.

Now you can have *COLOR* on your equipment by ordering our standard Unitized Conveyors, Narrow Belt, Ultimate and Rotary Tables in anodized aluminum construction for less than stainless steel and really be proud of the looks of your equipment.

Send now for Bulletin AA-1.

ISLAND EQUIPMENT CORP. Dept. MHE-10

P.O. BOX 380276 • MIAMI 38, FLORIDA

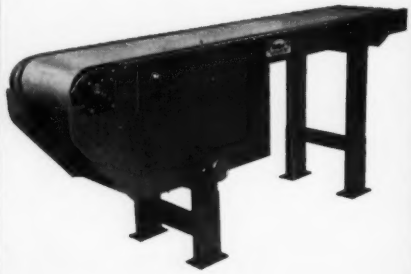
Please send your bulletin AA-1 covering the anodized aluminum construction on Unitized Conveyors and Rotary Tables.

Company.....

Name.....

Address.....

City.....State.....



Unitized CONVEYORS

The perfect mechanized table for assembly, inspection, packaging, or general purpose conveying. Portable or stationary — available in fixed or variable speed — available in 8" — 12" — 16" — 18" — 24" — 30" or 36" widths — available in gold, green, red or chartreuse anodizing.

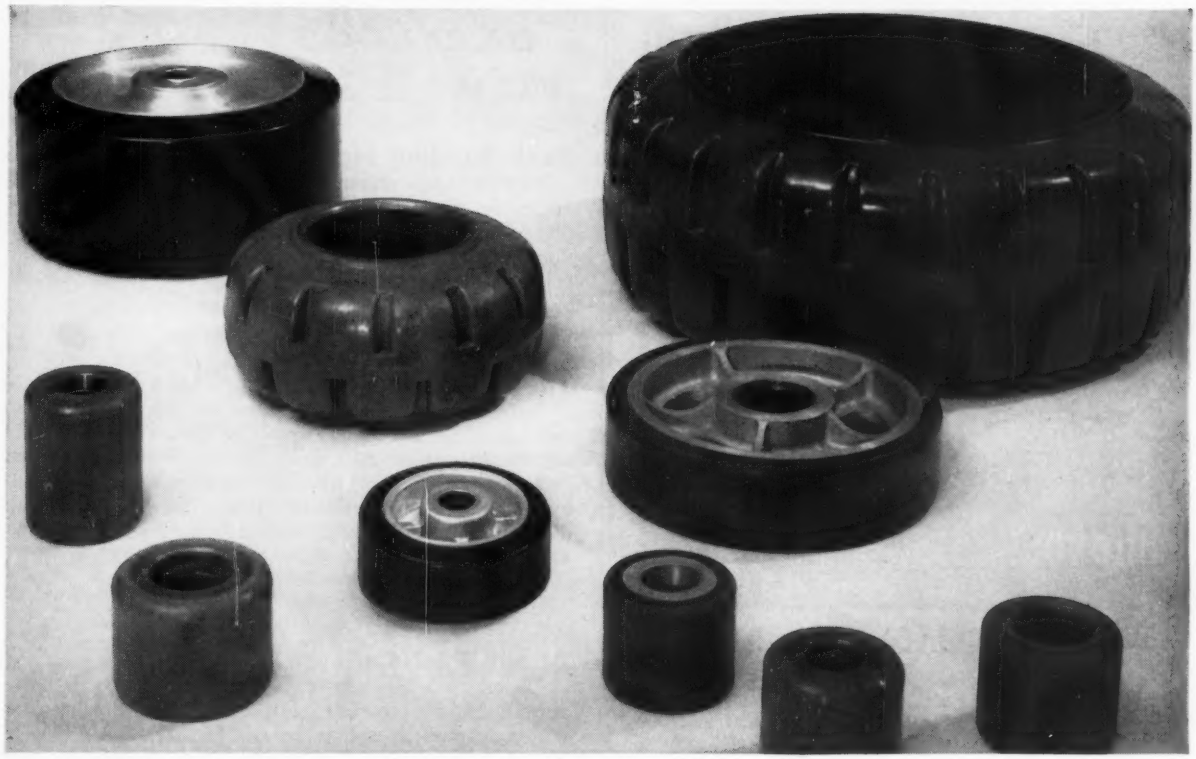
ROTARY TABLES

Unscramblers, Surge Tables or Accumulating Tables in standard disc diameters of 30" — 36" and 42" available with chassis in anodized colors and disc & guards in stainless steel.

This anodized aluminum will add beauty to any production line.

Serving Industry 20th Year

Circle **60** on Reader Service Card



For Heavy-duty Industrial Wheels...

ADIPRENE® Outlasts Other Materials, Carries Heavier Loads at Lower Cost!

These wheels are just a few of the many, many types currently being made from Du Pont ADIPRENE—the quality urethane elastomer designed to give long, economical service under conditions where rubber and other materials fail rapidly. Solid tires, caster and pallet wheels made from ADIPRENE carry far heavier loads; outlast conventional rubber wheels many times over. Yet they're resilient; won't mar floors.

ADIPRENE polymers combine resilience with high hardness and load-bearing capacity... give wheels the ability to carry heavy loads without chipping, gouging or chunking. They offer outstanding resistance to abrasion and impact, withstand attack by oil, grease, ozone, oxygen, salt solutions and dilute mineral acids. They also perform well at low temperatures (brittle point is below -80° F.).

ADIPRENE wheels are now available in a wide range of sizes and types from leading manufacturers throughout the country. Learn how this new Du Pont elastomer can help you increase efficiency and reduce maintenance costs in your plant.

Write for full information and a list of suppliers to: E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department MHE-10, Wilmington 98, Delaware.

DU PONT REG. U. S. PAT. OFF.

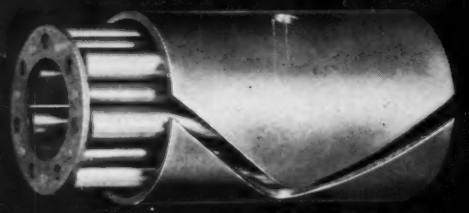
ADIPRENE®
URETHANE RUBBER

Better Things for Better Living . . . *through Chemistry*

Circle **29** on Reader Service Card

Circle **22** on Reader Service Card

CORLETT-TURNER
The **QUALITY** Bearing
in the 90,000 Series



unexcelled ← MATERIALS · CONSTRUCTION · FINISH · PERFORMANCE

C-T ROLLER BEARINGS

provide maximum service life at lowest possible cost. Widely used by major material handling, caster, wheel and farm equipment manufacturers. *Write for Catalog and Specification sheets today.*

CORLETT-TURNER CO.
9161 King Street • Franklin Park, Illinois
"BUILDING A REPUTATION ON SERVICE"

BULLETINS CATALOGS FILMS

Rack Building Handbook

"Slotted Angle Handbook" illustrates uses of slotted angles for building racks, shelves, and enclosures. Explains how to build these items from slotted angles. Shows cutters, straps, other accessories you use. Two colors, 8 p. *Dexion, Inc.*

Circle **349** on Reader Service Card

They Put Bins Up To Get Costs Down

Technical report describes how 12 bins placed on a roof added needed storage space for Burgermeister Brewery. Brewery stores malt, grits. Two pneumatic conveyors carry material to bins, from bins to brewhouse, or direct from receiving to brewhouse. Report includes technical data on controls, motors, rates of flow. File ER-2082-4, 4 p. *Fuller Co.*

Circle **350** on Reader Service Card

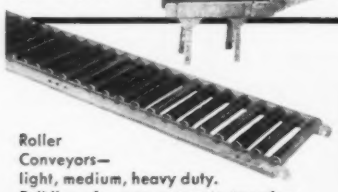
About Fuel Cells

"Tomorrow's Power Picture" tells you what one company is doing to develop fuel cells (device to make electricity direct from energy released by oxidation of fuel). Explains fuel cell principle with clear description and simple diagrams. Bulletin GB 2008, 2 colors, 8 p. *Gould-National Batteries, Inc.*

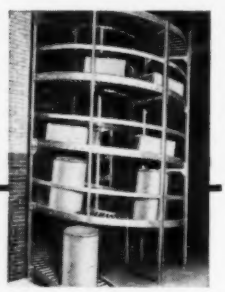
Circle **351** on Reader Service Card

OLSON CONVEYORS

Belt Conveyors—horizontal, floor-to-floor or ceiling hung; roller or slider bed. Standard or engineered to suit your requirements.



Roller Conveyors—
light, medium, heavy duty.
Full line of curves, supports, transfers and other accessories.



Wheel Conveyors
—steel or aluminum in
12", 15", 18" and 24" widths
in twelve-wheel patterns. All accessories. Assembled from stock components for prompt shipment.

Engineered units—spiral roller conveyors; spiral chutes; slat, pusher bar, chain conveyors; continuous and reciprocating vertical conveyors.

Write for Catalog 1000C (general), Catalog 750C Wheel Conveyors.

MANUFACTURED BY
SAMUEL OLSON MFG. CO., INC.
2426 Bloomingdale Avenue • Chicago 47, Illinois
DIVISION OF CHERRY-BURRELL CORPORATION

Circle **97** on Reader Service Card

engine exhaust . . .
"made safe enough for a baby"
CATALYTIC PURIFIERS

Practical, fully tested and approved, will make your industrial engine exhaust safer. Dangerous Cancer Suspect Hydrocarbons and Carbon Monoxide reduced to safe levels will increase employee productivity; increase profits. Oxy-Catalyst Exhaust Purifiers will convert gasoline, LP gas or diesel exhaust into harmless vapor for safer indoor operation of lift trucks, sweepers, engine-generators, construction and mining equipment.

Also inquire about our Fume and Odor Elimination Equipment for industrial processes.

AIR POLLUTION CONTROL

OXY-CATALYST, INC.
Berwyn, Pa.
Catalyst for cleaner, safer Air

Circle **98** on Reader Service Card

Offers Engineering Service

"Special Engineering Service" describes how industrial truck manufacturer's engineers will help you solve material handling problems. Gives 12 examples of what this service has done for industrial companies. 12 p. *Elwell-Parker Electric Co.*

Circle **352** on Reader Service Card

Containerize with Trailer Van

Cargo containers become trailers when you attach bogies (wheel sets). You can ship them with or without bogies by rail or ship. Folder describes these 8 ft. x 8 ft. by 20 ft. vans, shows in pictures how 2 couple together to make 40-ft. highway trailer. Two colors, 4 p. *Highway Trailer Industries, Inc.*

Circle **353** on Reader Service Card

Lift Truck Smoother Mover

Lift trucks built for close quarters have drive control that sequences automatically, through 4 speeds forward or reverse. Give you a smooth take off, quick stops, without jarring load. Other features of 1, 1¼, and 1½ ton models described, in Bulletins 7055A, 7056A, 7057A. Each 4 p. *Automatic Transportation Co.*

Circle **354** on Reader Service Card

Storage Racks

With standard diagonally braced, welded upright frames, and standard stringers, you can put together the storage racks you need. Catalog provides information on sizes, capacities, to make planning easy. Catalog 107A, 2 colors, 8 p. *Bernard Gloekler North East Co.*

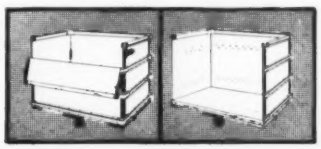
Circle **355** on Reader Service Card

Continued on next page

Circle **41** on Reader Service Card

VULCANIZED FIBRE
BOX TRUCKS

Drop Side and Open Side Models "Custom-Built" to suit your needs



Fedco

LIGHT • STRONG • MANEUVERABLE

ANY STYLE • ANY SIZE • Reinforced with heavy steel, rust proof rails and ribs. Inside completely snag- proof. Hardwood floors. Self-lubricating, easy rolling casters.

Federal FIBRE CORP.

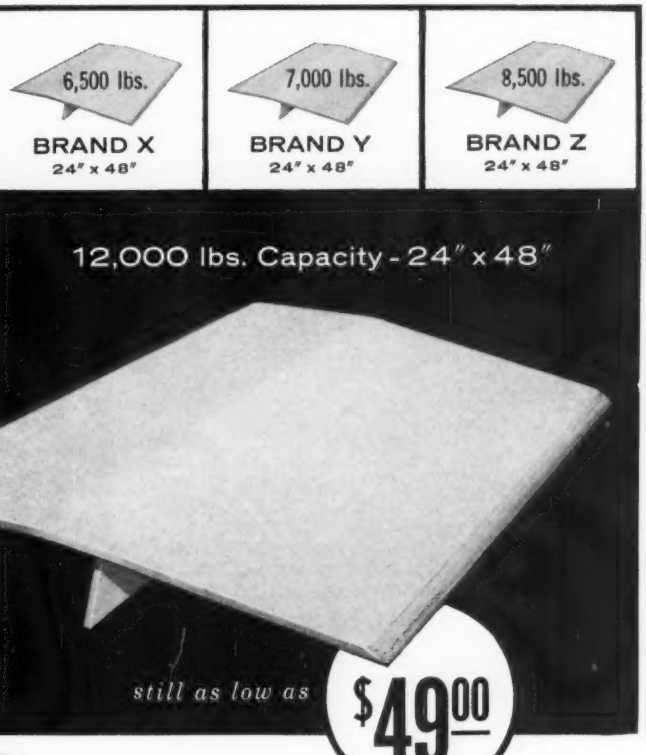
Also FEDCO Tote, Mill and Conveyor Boxes and FIBEROK Fibre Disposal Cans. **Write for Catalog.**

2626 Fourth Street. Dept. 7, Long Island City 2, N. Y.

when you look for dockboards
COMPARE SIZE . . . COMPARE PRICE . . . COMPARE CAPACITY *with*

Langsenkamp's DOCK PLATE

LIGHTWEIGHT—LOW-COST
SUPER STRENGTH ALUMINUM



GREATER CAPACITY PLUS ECONOMY!

Langsenkamp gives you an economical dock plate with greater work-load capacity to handle today's increased pay-loads.

It doesn't get tired! Special alloyed-aluminum has superior fatigue-resistance, giving Langsenkamp dock plates longer life.

Handling ease—Most sizes are so light in weight that one man can handle them easily.

9 Styles . . . capacities up to 15,000 lbs. Over 65 stock sizes from 24 x 48" to 96 x 60" plus all popular options such as fork lift brackets, side rails and stop pins.

Exclusive—Optional abrasive safety surface gives permanent non-skid protection even when wet!

F. H. LANGSENKAMP COMPANY

229 E. South Street
Indianapolis, Indiana

Circle **69** on Reader Service Card

Circle **100** on Reader Service Card

NO FLUID INK!
CONVEYOR LINE MARKING

NEW PORELON®
Micro-Porous Plastic
Trademark
S. C. Johnson & Son

THE PRYOR ROCKET

- Trouble free, non-stop "friction" operation—self inking up to 150,000 impressions
- Interchangeable rubber type. Easy-to-read impressions. Quick copy changes.
- Surprising low cost—saves expensive hand marking or large inventories of pre-printed cartons
- New simplified design—easier disassembly and inking. Rocket 1 prints up to 1 inch height. Rocket 2 prints up to 2 in. height
- Durable aluminum construction.

Write for FREE trial—specify model

IMPRINTS CODING, DATES, DATA ON:
- **CARTONS**
- **BAGS**
- **ROLLS**
- **CANS**
- **DRUMS**

Do you have a marking problem? Consult us.

PRYOR MARKING PRODUCTS
434 S. Wabash Ave., Chicago 4, Ill.
Some sales territories open for qualified representatives

BULLETINS CATALOGS FILMS

Measures, Controls Material Flow

Belt weigher weighs material carried on its integral conveyor belt. Typical materials are grain, coal, sand, flour, ore, plastics, fertilizer. Measures maximum rates from 10 lb. per minute to 60 tons per hour, with accuracy of plus or minus ½ per cent of maximum rate. Load cell that senses belt load does it. Bulletin tells how it works, gives dimensions, describes accessories for remote recording, totalizing, indicating, and controlling flow. Bulletin 36-02.20-1, 2 colors, 2 p. *B-I-F Industries*

Circle **356** on Reader Service Card

Helps You Specify Cranes

Specification data furnished with blank forms on which you can write your specifications for overhead traveling cranes. Bound into tablet in sets, 5 sets in a tablet. *Conco Engineering Works, Inc.*

Circle **357** on Reader Service Card

How to Use Glue

Service bulletin gives tips on how to use liquid glue for labeling cartons, cases, glass, wood, and sealing cartons or cases. Covers manual and electric labeling machines, squeeze applicator, brush application. Bulletin 10, 1 p. *Glue Fast Equipment Co.*

Circle **358** on Reader Service Card

The *Finco* family of fine carriers

FINCO carriers give you rugged, "below-the-belt" conveying action — where it counts most! Heavy-duty 5"-dia. rollers, 18"-48" wide in 6" increments; medium-duty 4", 18"-24" widths; low-cost light-duty "Rabbit-Ear" carriers, 8"-24" wide. Available in a variety of roller angles, out-of-stock. You get valuable troughing-action, smooth-performance and long-life with the FINCO-family of carriers. Order your requirements today.

Write for carrier spec sheets and prices

Finco inc. **Aurora, Illinois U.S.A TW-6-0836**

Circle **42** on Reader Service Card

LOADmobility
... AT LOWEST COST!

ECONOMICAL—On the dock, in the plant, wherever loads must move, put 'em on Magliner Pallet Dollies and they're *always* ready to roll . . . where and when you need them!

LIGHT WEIGHT—*Magnesium* light, easily carried by one man. Dollies get back to loading point faster, save time and money!

STRONG—Rugged, all-welded construction. 2,000 and 4,000 lb. capacities. Large 3½" ball-bearing rollers. Available in 14 standard sizes.

WRITE FOR BULLETIN P8-1
Magline Inc., P. O. Box 3210, Pinconning, Michigan

Magliner Magnesium PALLET DOLLIES

Circle **80** on Reader Service Card

Belt Conveyor Units

Specification sheet presents standardized belt conveyor units. Available with belt widths 2 in. to 18 in., from 5 to 80 ft. long. Steel, aluminum, or stainless construction. Many other options meet your needs for belt speeds, supports, drives, etc. Bulletin 102, 2 colors, 2 p. *New London Engineering Co.*

Circle **359** on Reader Service Card

Hoppers That Stack

Standard steel hopper boxes hold 2 tons, or 12 cu. ft. They stack 3 high fully loaded. Size (not including hopper ends) is 30 x 30 x 20 (depth) in. Stack them for storage, for your assembly line; use them as tote boxes. Form EWF, 2 colors, 2 p. *C. E. Robinson Co.*

Circle **360** on Reader Service Card

High Speed Hoists

New hoists handle ½ to 3 tons at high speed. Models for lug or trolley suspension, standard or close headroom, single or double reeved. Important optional feature: overload protection switch. Catalog DH-173, 2 colors, 8 p. *Wright Hoist Div., American Chain & Cable.*

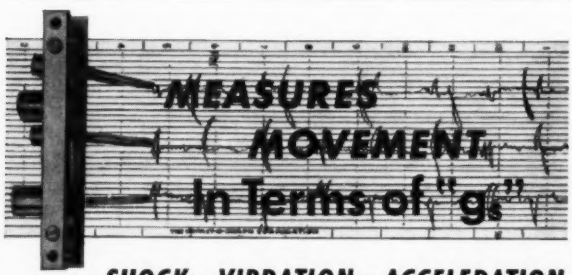
Circle **361** on Reader Service Card

Basic Tractor Units

Six-wheeled and crawler tractors are the basic units which can be equipped or modified to make a variety of heavy-duty lift trucks, loaders, backhoes, 'dozers. Six-page folder gives specifications, illustrates each unit. *Allis-Chalmers*

Circle **362** on Reader Service Card

Continued on next page

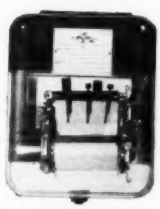


SHOCK—VIBRATION—ACCELERATION

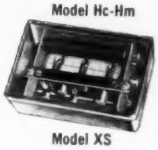
IMPACT-O-GRAPH has long been used by engineers and scientists engaged in tests that involve the measurement of movement be it shock, vibration or acceleration.

Where such tests involve the determination of reliability, setting up quality control systems, designing packaging or the measurement of environmental factors, IMPACT-O-GRAPH has approached the accuracy of expensive electronic equipment. Yet this three-directional instrument is compact, self-contained and costs a fraction of bulky electronic shock-testing apparatus. It also provides you with a permanent charted record of test results plus time and date factors, if required.

There are many different models of IMPACT-O-GRAPHS for various purposes. Tell us your requirements and we'll recommend the correct instrument. Also, send for the IMPACT-O-GRAPH brochure for the complete story. Leasing arrangements can be made. Approved by the National Safe Transit Committee.



Model Hc-Hm



Model XS

Choice, exclusive territories open for qualified representatives.

THE IMPACT-O-GRAPH® CORPORATION

B. F. KEITH BUILDING • CLEVELAND 15, OHIO • CHerry 1-5838

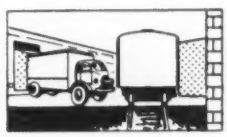
Circle **61** on Reader Service Card

Circle **31** on Reader Service Card

There's a big difference . . . in fuel costs . . . in employee morale . . . in productivity of workers . . . in absenteeism due to colds or accidents . . . in protection of merchandise.

Only DAZZO Dock Shelters provide quick and full protection for dock operations in bad weather. Less than full protection is merely money wasted!

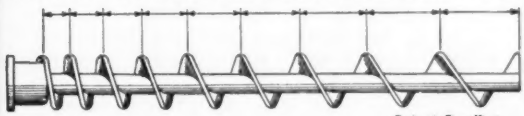
DAZZO Dock Shelters adjust themselves automatically to different dimensions of railroad cars or trucks. They expand in seconds by gravity, without use of springs. They retract out of the way when not in use.



Save *money* and *grief* . . . write for the facts about DAZZO Dock Shelters today!

DAZZO PRODUCTS, INC. 332 Park Ave., Brooklyn 5, N.Y. ULster 5-6641

Now! A Screw that Prevents PACKING



Patent Pending

Progressive Pitch Conveyor Screw

With this uniquely designed and constructed screw, material can be conveyed *without packing!* Each pitch is progressively larger so the material is moved forward at a greater speed per revolution and won't bind or clog.

The PROGRESSIVE PITCH CONVEYOR SCREW can be produced for the handling of any material using a spiral shaft conveyor. It can be made in any pitch, diameter and capacity, with right or lefthand flights, to your specifications. 10,000 different combinations of pitches, diameters and sizes are possible. Some standard sizes in stock in different cities.

Install a PROGRESSIVE PITCH CONVEYOR SCREW to replace an old one or to use in your new systems.

NEW FOLDER THAT TELLS ALL—SEND FOR IT TODAY!

Call or write so we may discuss your conveyor needs or problems.

WORLEY EQUIPMENT, INC.

2301 N. Knox Avenue • Phone ALbany 2-2830
CHICAGO 39, ILL.

Circle **133** on Reader Service Card

Circle **102** on Reader Service Card

NEW

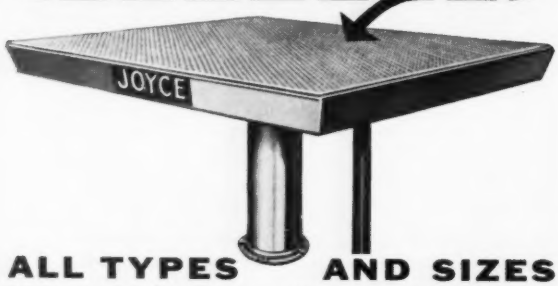
POLYETHYLENE TANK WITH SPIGOT . . . STORES AND DISPENSES LIQUIDS AND GRANULAR SOLIDS

Viscous materials, granular solids and liquids flow freely through the spigot on the new Redmanson polyethylene tank. Corrosive liquids can be stored and dispensed as the spigot is also polyethylene. These tanks cut storage costs because they last longer than steel and cost far less than stainless. They are easy to clean, light in weight and content levels can be checked as the walls are translucent. A breather cover permits venting. Sizes up to 55 gallons with a ¾" or 2" spigot. Write for information and prices.

REDMANSON CORPORATION
630 Loucks Mill Rd. York, Pennsylvania
Distributorships and mfg. rep. territories available

JOYCE MATERIALIFTS®

Speed Materials Handling!



ALL TYPES AND SIZES

Single and Two-Post Platform Lifts... Dock Handling Equipment... Factory Truck Service Lifts... Special Hydraulic Lifts... Hydraulic Cylinders—All Sizes... Compression Devices... Elevator Components... Custom Engineered Material Handling Products... SEND COUPON FOR NEW BULLETIN 441 TODAY!

THE JOYCE-CRIDLAND COMPANY, DAYTON 3, OHIO
Rush Bulletin 441 on MATERIALIFTS!

NAME _____

COMPANY _____

ADDRESS _____

Circle **63** on Reader Service Card

BULLETINS CATALOGS FILMS

Elevating Tailgates

One- and two-ton models of hydraulically-operated elevating tailgates fit all trucks, can be installed at rear or side of trailers. Folder describes mechanism, gives specifications, also explains how gate enables you to save up to 50 percent on manhour cost of deliveries. Bulletin BH-55100, 6 p. *The Heil Co,*

Circle **363** on Reader Service Card

Largest Truck Crane

Portfolio presents 90-ton capacity (at 12-ft. radius) wheeled truck crane, world's largest. Describes features, such as special electro-magnetic coupling that makes control of swing fast and accurate. Provides range diagrams, detailed specifications for crane, dragline, and clamshell. Bulletin TX-307, 2 colors, 12 p. *Harnischfeger Corp.*

Circle **364** on Reader Service Card

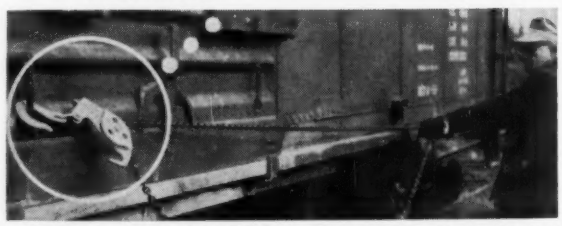
Weighing Attachment for Fork Lifts

Attach load cell to the fork mounting on a fork lift truck, and you can read load weights from a panel mounted on truck's instrument board. For maker's 3,000-, 4,000-, and 5,000-lb. capacity trucks. Bulletin describes how device works, how it's mounted, what you can do with it. Catalog SS-1665, 2 colors, 4 p. *Clark Equipment Co.*

Circle **365** on Reader Service Card

END THIS COSTLY MAN-KILLING PRACTICE!

— save lives, limbs and money with the



NOLAN MODEL H ONE MAN CAR DOOR OPENER

NOLAN SINCE 1909

Opens any freight car door in 20 seconds or less! ONLY $45 f.o.b. Bowerston.

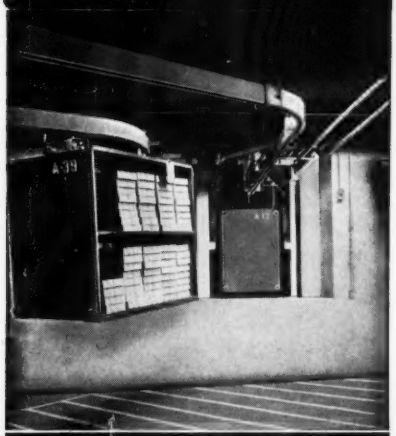
Write for complete new catalog

The Nolan Co., 110 Pennsylvania St., Bowerston, Ohio

Circle **93** on Reader Service Card

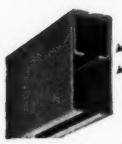
Power -Flex®

POWER AND FREE
OVERHEAD CONVEYOR SYSTEM*



WITH TELEMATIC
AUTOMATIC DISPATCH CONTROL

• *Simply set dials and Telematic guides carrier to any station in system*



Employs exclusive unitized "over and under" power and free rail which permits simple switching to right or left as desired.

Power-Flex is designed for automated materials forwarding applications in industrial plants, distribution centers, service buildings and department stores. The most economical system available for loads up to 600 lbs. per carrier. Savings in actual installations range from 25% to 60%.

* Systems in service for your inspection.

Engineered to your very specific requirements.

SEND FOR BROCHURE

Inquiries from your engineers or consultants welcomed.

CM CONVEYORS

COLUMBUS McKINNON CORPORATION
Conveyor Division
TONAWANDA, N. Y.

Circle **20** on Reader Service Card

CALENDAR OF EVENTS

October 3
Meeting
Hoist Manufacturers Association
Statler Hilton Hotel
Cleveland

October 16-20
National Safety Congress
Chicago

October 31, Nov. 1-2
10th Canadian National Packaging Exposition
Automotive Building, Exhibition Park
Toronto

November 4-7
Eighth Annual Building Materials Exposition
McCormick Place
Chicago

November 7-10
Packaging Machinery Manufacturers Institute Show
Cobo Hall
Detroit

March 7-9, 1962
Early Spring Meeting of The Material Handling Institute, Inc.; and The Industrial Truck Association
Sheraton Blackstone Hotel
Chicago

May 8-18, 1962
Mechanical Handling Exhibition
Earls Court
London

May 9-11, 1962
Western Material Handling & Packaging Show
Great Western Exhibit Center
Los Angeles

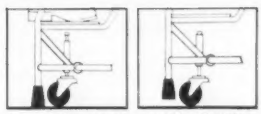
June 19-21, 1962
Material Handling Institute Great Lakes Show
Cobo Hall
Detroit

November 14-16, 1962
The Material Handling Institute Southwest Show
Dallas

GO UP WITH CONFIDENCE ON

BALLYMORE

Safety-Step
LADDERS



Now . . . Ballymore combines welded steel or aluminum safety treads with wide-base pyramid design to offer extra safety and stability. Ballymore ladders let you climb quickly . . . and with confidence—any required height up to 15 feet. Spring-mounted casters that retract when you step on the first step is another safety "plus." They let you roll the ladder easily, yet grip the floor surely to provide safety at all levels.

All welded, corrosion-resistant Ballymore Safety-Step Ladders are available in four types—with 47 models to choose from. Step up to a new standard of safety today.

WITHOUT HANDRAILS

WITH HANDRAILS

For illustrated catalog covering complete line, write to

BALLYMORE COMPANY,
WEST CHESTER 5, PA.

BALLYMORE
EQUIPMENT FOR WORKING
Safely ABOVE FLOOR LEVEL

Call your
LOCAL DISTRIBUTOR

Circle **10** on Reader Service Card

PRODUCT NEWS

Continued from page 50

Durable Hand Lift Truck

Lift-Wagen Model 51.29 has 2,500 lb. capacity, handles either single or double-faced pallets. Has the same machined slide planes as used on Revolvator heavy duty pallet trucks. Forks are of formed steel with four-way tapered tips. Truck comes in three lengths: 36", 40", and 48"; and in widths of 21" and 27". Features a pull handle operated pump for lifting ease. Three-position pedal for selection of lifting, lowering or free handle pulling. Formed steel and welded construction provide durability and light weight. Rolls easily on ball bearing fitted 7" diameter front

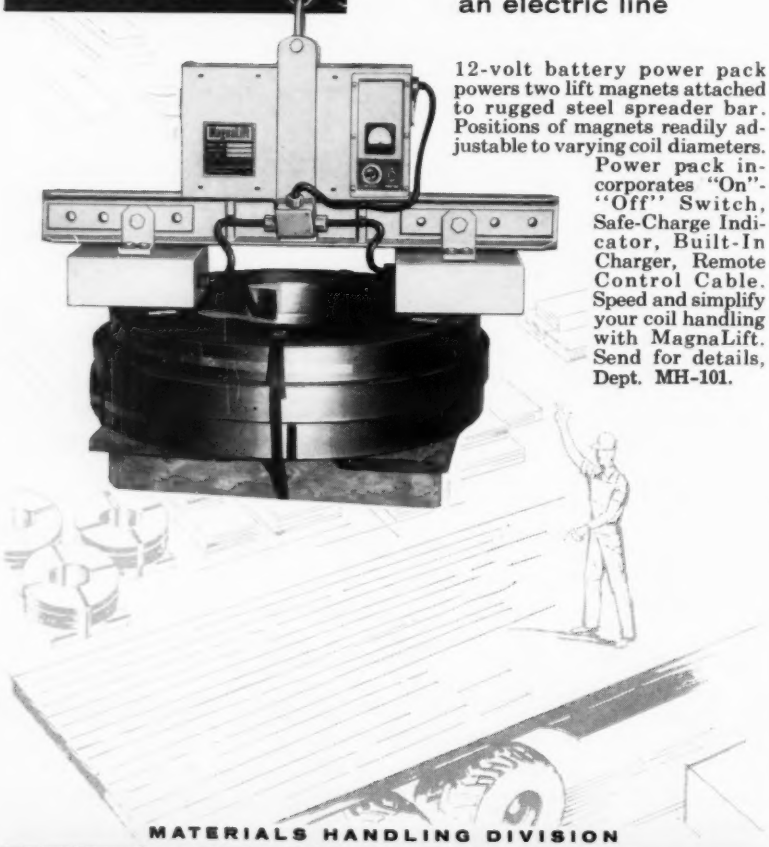
wheels and 3¼" load wheels.

Revolvator Co.

Circle **418** on Reader Service Card

NOW...load and unload steel coils anywhere without slings, hitches or chains!

Powerful **MagnaLift** battery-powered COIL LIFTER not dependent on an electric line



12-volt battery power pack powers two lift magnets attached to rugged steel spreader bar. Positions of magnets readily adjustable to varying coil diameters. Power pack incorporates "On"-"Off" Switch, Safe-Charge Indicator, Built-In Charger, Remote Control Cable. Speed and simplify your coil handling with MagnaLift. Send for details, Dept. MH-101.

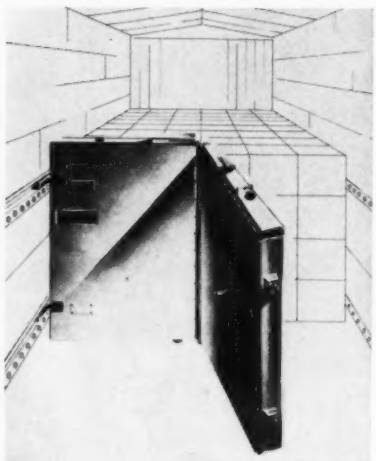
MATERIALS HANDLING DIVISION

Hanchett MAGNA-LOCK CORPORATION BIG RAPIDS, MICHIGAN, U.S.A.

Circle **52** on Reader Service Card

Adjustable Boxcar Bulkhead

New adjustable bulkhead takes the place of dunnage to secure loads in insulated, refrigerated, and general purpose boxcars. Hinged trolleys fasten it permanently to rails along one side of car; it is also supported at the bottom by four heavy duty swivel casters. It swings back out of the way for loading and unloading, but cannot be detached. To lock the bulkhead in position you move two handles, engaging four pins in channels on each side of car. Advantages are low initial cost, low installation cost, and quick, economical operation



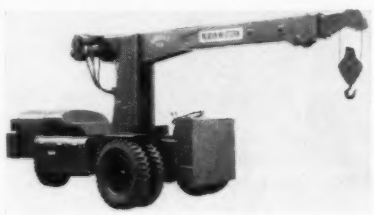
without any loose parts to get lost or complex mechanism to maintain. Normally used in pairs, 2 to a car.

Youngstown Steel Car Corp.

Circle **419** on Reader Service Card

Crane With Optional Hydraulic Booms

Four basic options are available to tailor the Model 110 self-propelled hydraulic crane to any job in the



5-ton range. Chassis is a conventional 3-wheel design with dual front driving wheels and a rear power booster steerable dual-wheel (trunnion type). All wheels have pneumatic tires.

Austin-Western Construction Equipment Div., Baldwin-Lima-Hamilton Corp.

Circle **420** on Reader Service Card

Continued on page 108

MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS

SPEED, FLOORS, OPERATING CONDITIONS DETERMINE CASTER LOAD CAPACITY

may modify catalog ratings

When ordering casters from the load capacity data given in catalogs, you must consider such variables as operating speed, condition or type of floor, and whether operation is to be manual or power pulled.

All of these may modify the published load ratings given on a caster or a certain type of wheel. The catalog data can only be an approximation.

Bassick—with a reputation to maintain as the world's largest caster maker—protects customers by making its ratings conservative. However, you should keep in mind the elementary facts on this page. In cases of doubt, submit full details on loads, operating conditions, speed, type of equipment to Bassick and ask for recommendations. We will be glad to supply them.

Wheels can give you more if you pick them right

Don't, for instance, expect a rubber-tread wheel to carry the same load as a metal or hard tread composition wheel of the same size. The rubber tread wheel can be counted on to carry about half as much.

Take the popular Bassick "H99." With a 2″ tread semisteel wheel 6″ in diameter, this caster is load-rated at 750 pounds per caster. The same caster with a Bassick "Alcore" aluminum cored rubber tread is load-rated at 410 pounds. (Tire & Rim Ass'n Rating, and Caster & Floor Truck Mfgs. Ass'n Standard.)

Then, too, for equal loads on equal floor surfaces soft rubber tread wheels will be harder to roll and swivel than an otherwise equivalent caster with steel or hard tread wheel.

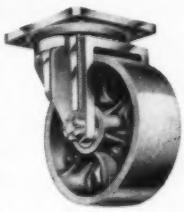
Soft treads *do* give the advantages of increased floor protection and less noise. And a hard composition wheel like Bassick non-marking "Atlasite" can give you almost the carrying capacity of steel wheels with a great deal more protection to floors.

DID YOU KNOW

. . . that roller bearings do *not* increase load carrying capacity? But they do give easier starting and easier rolling under maximum loads.

DO YOU NEED A "RACE HORSE" OR "BULL ELEPHANT" CASTER?

Sometimes in caster selection you can trade speed for load carrying capacity . . . and vice versa . . . and sometimes with judicious planning you can get a moderate degree of both speed and power. For instance:



This 10″ Series "93" caster is a real "bull elephant." On static load it can stand up safely under 60,000 pounds. At the moderate speeds at which it is designed to move, Bassick rates it at 15,000 pounds. You wouldn't expect this caster to do the job of a "race horse" properly, and it won't.

On the other hand, here's a 10″ Series "TS" caster that's specially designed for carrying *power-pulled* loads at 5 to 10 miles an hour—trailer usage—high speeds for a caster. Load capacity under these conditions: 2,500 pounds per caster, with semisteel wheels. Bassick "Floating Hub" casters may be obtained for even higher speeds.

FLOOR CONDITIONS MAKE A BIG DIFFERENCE

If floors are fairly free from roughness and obstacles, you need not worry too much about moderate overloads. Bassick's conservative ratings allow a substantial safety factor. For instance, the 6″ semisteel-wheeled "H99," though rated at 750 pounds, would safely carry 1000 pounds if overloaded by a careless workman.

"Floating Hub" caster

However, if operating conditions are rough, use casters and wheels rated *above* the maximum loads anticipated. In addition, select a wheel large enough to ride easily over obstacles (Bassick "Floating Hubs" help here, too). The larger the wheel the easier it will roll.

SEE YOUR BASSICK DISTRIBUTOR

. . . he can solve most of your caster problems on the spot . . . and he stocks Bassick casters for immediate delivery. 1.44

THE BASSICK COMPANY
BRIDGEPORT 5, CONN.
IN CANADA:
BELLEVILLE, ONT.

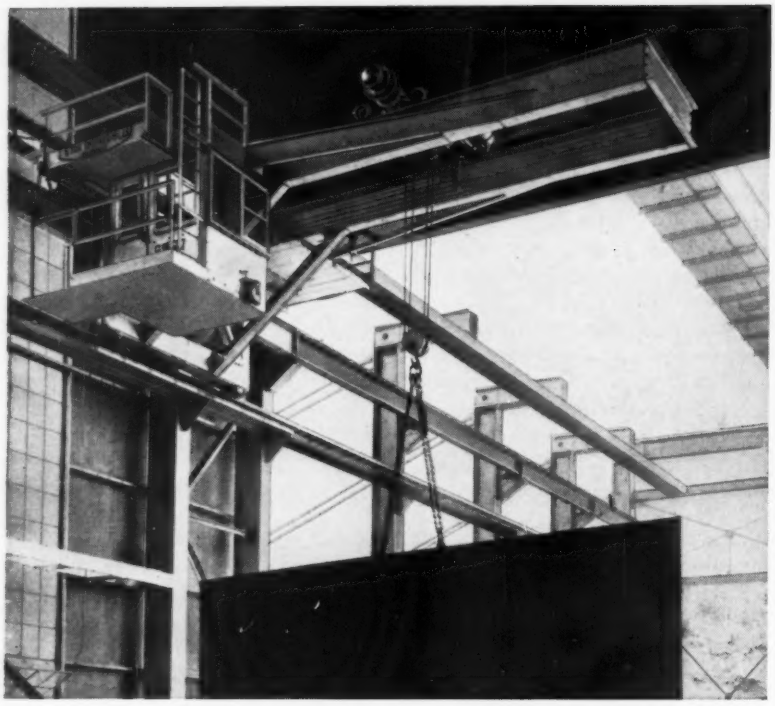
see our catalog in Sweet's or write for copy

Symbol of SW Excellence — Bassick — A DIVISION OF STEWART-WARNER CORPORATION

Circle 11 on Reader Service Card

SHEPARD NILES JOB-MATED CRANES:

DIFFERENT—because each job is different



Shepard Niles Cab Operated Wall Crane

This Shepard Niles Job-Mated QUALITY Crane was specifically designed for the actual job it is doing. Each component – motors, controls, frame, gearing, trolleys, brakes – was designed and built by Shepard Niles to give the best overall crane performance under unique operating and load conditions.

Your load-moving problem will receive this same careful consideration at Shepard Niles. Even in so-called "standard" applications, our insistence on selecting the right components to meet exact on-the-job conditions, results in a custom-built crane. Care like this in our plant means lower operating costs and increased efficiency in yours.

For the full story on how Shepard Niles Job-Mated Cranes can cut costs in your plant, arrange to have a Shepard Niles representative call at your convenience. Or send for our descriptive bulletin.

Member of Electric Overhead Crane Institute

America's Most Complete Line of Cranes and Hoists

SHEPARD NILES
CRANE AND HOIST CORPORATION

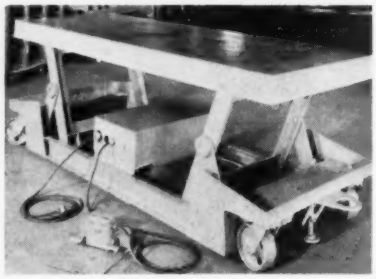
2768 Schuyler Ave., Montour Falls, N.Y.

Circle **111** on Reader Service Card

PRODUCT NEWS

Hauls, Raises Metal Sheets

Scissors-lift feed table rolls on heavy duty swivel casters, has towing

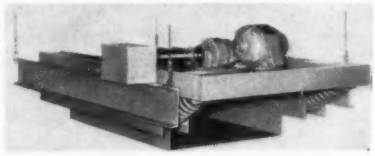


eyes. Load a lift of steel on it, wheel it to your shear, brake, or punch press – it eliminates two handlings. Has 6,000 lb. capacity, elevates from 20-in. low to 36-in. high. Table width 3 ft., length either 8 ft. or 10 ft. Pedals or pushbuttons control ¾ h.p., 220/440 v. 3-phase gear motor that elevates load. *Jarke Mfg. Co.*

Circle **421** on Reader Service Card

Mechanical Vibrating Feeder

The Solid Stroke variable rate mechanical vibrating feeder doesn't need a downhill slope to deliver its tonnage. You can set it at various angles,



even up hill, to suit your plant layout. Variable stroke eccentric drive provides a zero to maximum variable rate of feed. Once put into motion by the electric drive motor, coil springs vibrate the conveying trough. Company says practically all types of bulk materials can be conveyed at flow speeds up to 90 f.p.m. Material is moved by a throwing rather than sliding action, reducing trough wear. Standard A.C. motors power the feeders. Manual or electric remote controls available.

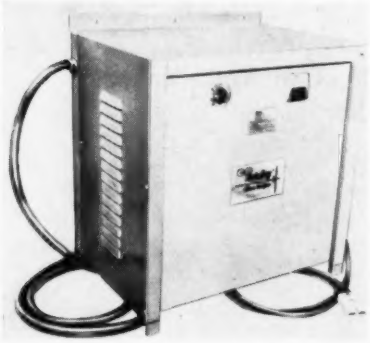
Stephens-Adamson Mfg. Co.

Circle **422** on Reader Service Card

Combination Power Pack Saves Truck Battery Costs

Here's a program for electric truck users to help save money on battery costs. Company offers its Operation 90 program. You get a combination

power package consisting of a Slyver-Clad battery and a C & D AutoReg



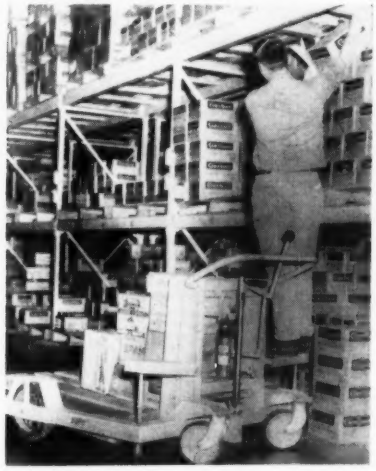
charger, and a warranty for both. Battery is guaranteed for 7½ years of service when used with the specified charger. The cell containers and covers are guaranteed against breakage during the life of the battery. Company says that by using this complimentary equipment, and with its single source responsibility for charger, battery, and service, you can save your company battery power costs. Illustration shows the charger which automatically supplies the charging current required by the battery.

C & D Batteries

Circle **423** on Reader Service Card

Three Trucks in One

Pallet truck, order picking truck, drag-line truck, all in on eis description of this 3-in-1 unit. Hydraulic lift



rises 3¾ in., has 3 ton capacity. Safety steps for order picking set spring-loaded brakes. Wheels have Timken bearings. Has cam-operated hardened tow pin in 360° floating swivel assembly. Overall dimensions 50¾ in. wide, 68¾ in. long. Weight 450 lb., rated capacity 1 ton.

Nutting Truck and Caster Co.

Circle **424** on Reader Service Card

Continued on page 110

Just off the plane and HERE COMES YOUR LUGGAGE

Turntables in incoming domestic flight area at Montreal International Air Terminal. The 80-foot perimeter of each slowly rotating luggage dispenser provides adequate space for passengers to identify and claim their luggage.

AN AIR TRAVELER'S DREAM COME TRUE!

You have just stepped off a plane with other jet-age travelers, and already an intricate system of belt conveyers, vertical hoists and turntables has been set in motion. The object—to get your luggage to you as quickly and as smoothly as possible—without confusion or delay. This is a good example of outstanding performance—the extra you get in Mathews Conveyers.

Write today for Bulletins U.A.L. 61—M.I.A. 561.

MATHEWS CONVEYER COMPANY

GENERAL OFFICES . . . . . ELLWOOD CITY, PENNSYLVANIA
PACIFIC COAST DIV. . . . MATHEWS CONVEYER COMPANY WEST COAST, SAN CARLOS, CALIFORNIA
CANADIAN DIVISION . MATHEWS CONVEYER COMPANY, LTD., PORT HOPE, ONTARIO.

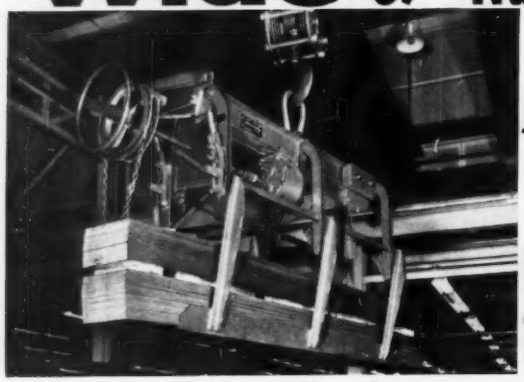
MATHEWS

Over Fifty Years of Leadership in Mechanized Handling

Circle **84** on Reader Service Card

Circle **23** on Reader Service Card

Wide *or* Narrow...

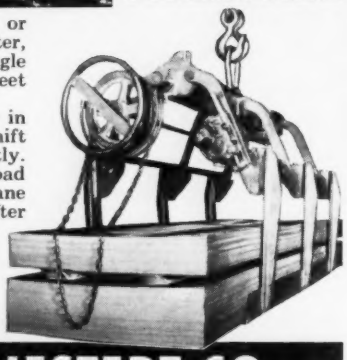


1 C-F LIFTER HANDLES THEM ALL

Whether your production requires a few or many widths of sheet steel, 1 C-F Lifter, with its wide range of jaw and carrying angle adjustments will probably meet all your sheet handling requirements.

Adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes almost instantly.

Because it can pick up, carry and unload more loads per hour, using less man and crane time than any other method, a C-F Lifter will soon pay for itself.



Bulletin SL-30 gives you the complete story of C-F Lifter advantages to you. Ask for it today. There's no obligation.

CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

Traffic SAFETY MIRROR

SERIOUS INJURY NEED NEVER HAPPEN!

• Prevent traffic accidents at blind corners inside and outside your plant—also at loading platforms.

TRAFFIC SAFETY MIRRORS are available in convex, flat glass, laminated safety glass or unbreakable metal.

Round Convex Mirror Sizes
13" • 18" • 25" • 36"

Rectangular Convex Mirror Sizes
15"x24" • 20"x30"

Rectangular Flat Mirror Sizes
6"x14" • 10"x14" • 14"x18"

Brackets and all necessary hardware included with each unit.

WRITE FOR CIRCULARS TO-DAY

Fred Silver & Company

MANUFACTURER • GLASS & PLASTIC PRODUCTS

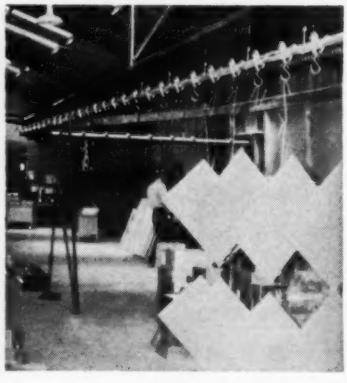
92 LOCK ST. NEWARK 3, N. J.

Mitchell 2-2309

Circle **115** on Reader Service Card

ECONO

Overhead Trolley Conveyors



For
Retailers - Wholesalers - Manufacturers

To Aid The Above In
STORAGE - PROCESSING
TRANSPORTATION
ASSEMBLY OPERATIONS

Investigate today this versatile, efficient low cost conveyor.

Write for Literature and Prices

ECONO MFG. CO.,
Celina, O.

Circle **33** on Reader Service Card

PRODUCT NEWS

Nesting Pails Protect Products

Company has modified the standard five-gallon pail into taper-sided nesting pails in 24, 26, and 28 gage steel. Several styles available. Ideal

for handling solvents, insecticides, food products, paints, chemicals, petroleum products, soaps, etc. Features include: planished side seams, selected steel material, projection welded ears, special lining application, and a bottom chime designed to give maximum stacking ability for filled or empty containers. Special Handy-Pak units, a top and bottom cap of corrugated board steel-strapped around a group of pails, enable you to stack pails high, increase your usable storage space. Bennett pails may be packaged in 24, 27, 36, 48, 60, and 100 pail units to suit your convenience and unloading equipment.

Bennett Industries, Inc.

Circle **425** on Reader Service Card

Portable Fabric Tank

For industrial, construction, and farm use. Capacity range: 60 to 350 gallons. Eight sizes. A 350-gallon Utility Tank weighs only 50 lb. when empty, handles easily by one man. Made of finely woven nylon fabric impregnated with a specially com-

pounded rubber. Rubber coating resists fuel oil, gasoline, transformer oil,

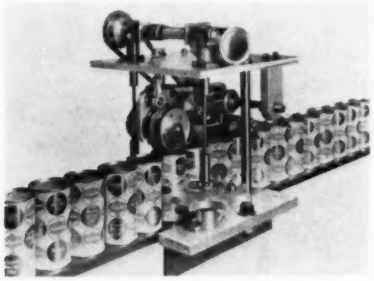
liquid fertilizer, and weed sprays. When empty the tanks roll up like a rug. Can be handled on skids by fork trucks for inplant use. Tanks come with tie-down straps, are fitted with a metal coupling for hose connections.

The Goodyear Tire & Rubber Co.

Circle **426** on Reader Service Card

1,000 Imprints a Minute!

New flexographic imprinter marks 1,000 packages a minute. Marks bottoms of cans, cartons, cottage cheese containers, etc. Floating printing head



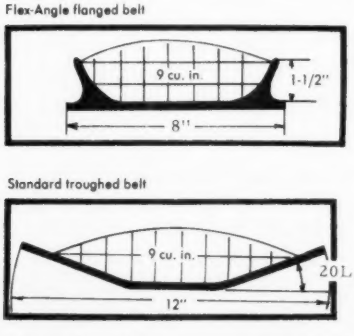
follows contours of can tops. Unique automatic inertia device keeps star wheels in proper position and prevents them from overrunning. Printing drum adjusts quickly for spot printing.

Industrial Marking Equipment Co.

Circle **427** on Reader Service Card

Belting Saves Space

Troughed belt conveyors can be up to 33 percent narrower when you use flanged belt, says manufacturer. You



also make idlers, supporting frame smaller, lighter. Flex-angle flanges are bonded to belt without overheating, using improved rubber welding method. Flanged belt has long life, flexes easily around pulleys. Flange heights available: 1 in., 1½ in., and 2 in., requiring respectively 8, 12, and 16 in. pulleys.

Ralphs-Pugh Co., Inc.

Circle **428** on Reader Service Card

Continued on page 112

USED BY TOP NAMES IN INDUSTRY AND TRANSPORATION

With "Ship To" frame pre-printed by carton maker, shipping clerk uses Multistamp Duplicator to address up to 1000 pieces of the same shipment with the same low-cost stencil . . identically, accurately, quickly, easily.

Using Multistamp FORM-CUT stencil, printing the form and fill-in data at the same time is an easy, one—man..one—hand operation. Your form is custom die-cut in the stencils . . you fill them in with ball point pen or typewriter.

EASY TO READ
QUICK DRYING
FADEPROOF
WATERPROOF

MULTISTAMP **Stencil Addressing System**

Quickest Way for **Volume Shipping**

Shipping department addressing errors are virtually eliminated when address and routing information are printed directly on cartons by the Multistamp Stencil Duplicator. The print becomes an identical smear-proof . . fade-proof . . waterproof . . permanent part of every carton. Following simplified Multistamp Marking Methods, the address stencil is cut in the same typing which fills out shipping order, bill of lading, invoice, and other forms. One typing . . one easy operation.

MULTISTAMP
STENCIL DUPLICATOR ®
THE MULTISTAMP CO. NORFOLK, VA.

Write for your FREE copy of our How-to (and Why) Story

Send me a copy of your Multistamp Marking Methods book.

FIRM .....

By..... Title.....

Address .....

City..... Zone..... State.....

Circle **89** on Reader Service Card

Clarke
POWER SWEEPERS

Walking Type power sweepers in 27″ and 36″ swath sizes. Riding sulky available for 36″ size.

Riding Type sweeps 36″ swath, is easily maneuvered, even in congested areas.

Heavy Duty Riding Type sweeps 36″ swath, is built like a tank for 'round the clock use.

CUT SWEEPING COSTS UP TO 80%

These rugged workhorses will outstrip twenty men with pushbrooms in sweeping large floor areas! They cover from 35,000 to 100,000 sq. ft. per hour, sweeping right up to the walls, picking up all debris and dust. Available in walking, sulky and riding types to reduce your sweeping costs as much as 80% . . . *give you labor costs as low as 15c per hour!*

For a demonstration on *your* floors, write for full details and name of your nearest Clarke Power Sweeper distributor.

Distributors: Select franchises still available in some areas. Write for details.

Clarke
FLOOR MACHINE COMPANY
DIVISION OF STUDEBAKER-PACKARD

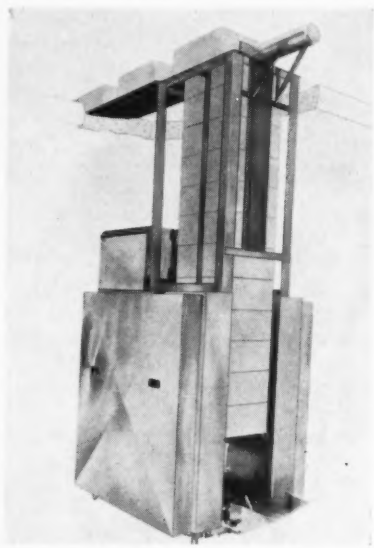
7510 Clay Avenue, Muskegon, Michigan
Authorized Sales Representatives and Service Branches in Principal Cities
In Canada: Clarke Floor Machine Co., (Canada) Ltd., 21 Advance Rd., Toronto 18, Ont.
Distributed by: Rudel Machinery Company Limited, Montreal 3, Quebec

Circle **18** on Reader Service Card

PRODUCT NEWS

Elevates or Compresses Cartons

Automatic elevator raises full cartons to upper floor level, or to elevated storage. Feed cartons into the machine; it raises the first, holds it on pivoting storage shelves, then raises the next carton under the first, forming a stack, and so on. At top of elevator an ejection ram pushes the top carton onto accumulating or



storage conveyors. Handles 20 cartons a minute, has 350 lb. capacity. Can also be used as a vertical compression unit for cartons as they come from case sealer. Adjusts quickly to many carton sizes. *Lathrop-Paulson.*

Circle **429** on Reader Service Card

4,000 Lb. Capacity Truck

This heavy duty fork truck is called the K-40. Has a free flotation

power train so all load stresses are carried by the truck frame. Built for

indoor and outdoor use, and designed for use in lumber yards, brick, block and stone plants. Has a lift of over 9 ft. with a 10 degree angle both forward and backward. Powered by a 30 horsepower air-cooled Wisconsin engine. Company says this truck was especially made for comfortable operation. Full power steering, fingertip hydraulic controls, foot and hand throttles.

O. W. Kromer Co.

Circle **430** on Reader Service Card

Portable Platform-Ramp

Portable magnesium platform and mobile loading ramp combination eases ground-to-carrier loading where

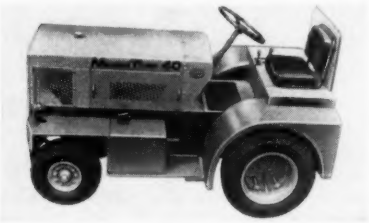
access space is limited. Power vehicles can move easily up and down the ramp, parallel to carrier, and make a normal 90 degree turn on the platform. Ramp has open grating surface with serrated tracks for all-weather traction. Ramp hydraulically elevates to desired height. Safety chains lock to the platform for smooth safe cross over. Portable platform available in 13 models, the mobile loading ramp in 14. Standard capacities up to 20,000 lb.

Magline Inc.

Circle **431** on Reader Service Card

4,000-Lb. Drawbar Pull

New MobilTow 40 towing tractor has a 4,000-lb. drawbar pull. Tractor pushes or pulls freight, bales,



barrels, cargo of any type on trackless trains. Useful at airports, rail yards, shipping docks, truck terminals, cotton gins, warehouses, factories. Has torque converter, 2-speed transmission. Turns in radius of only 120 inches. Overall length 95 inches; width 64½ inches; wheel base 62 inches; weight 5,600 lb. Speeds up to 14 mph forward and reverse; uses 58 b. hp. engine.

Motec Industries Inc.

Circle **432** on Reader Service Card

GO-GETTER *Finger Tip Control for Speed, Ease, Safety*

Go-Getter powered lift trucks are available in six basic models in each of four series (stand-on or walkie, explosion proof or standard) with a range of sizes and capacities in each.

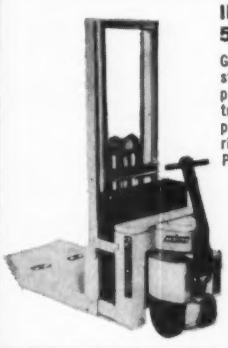
The Go-Getter is fully powered for both traction and lift. Safety factors include fingertip lift control and warning horn. Dynamic brake for downgrade control and deadman mechanical brake for positive stops are controlled by a single directional switch. Stand-on models give the operator a clear view in any direction of travel. Position of operation is fully inside the truck, offering protection from obstructions.

INDEX No. 54.11

Go-Getter low-lift platform model (ride-on explosion proof) for transporting skids. Also in standard and walk-along series.

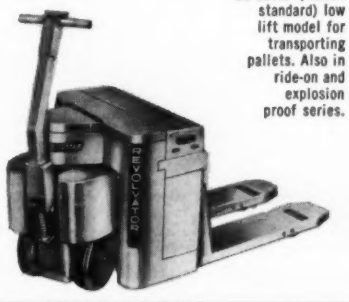
INDEX No. 52.12

Go-Getter (Walk-along standard) high lift platform model for transporting and high piling skids. Also in ride-on Explosion Proof series.



INDEX No. 52.21

Go-Getter (walkie standard) low lift model for transporting pallets. Also in ride-on and explosion proof series.

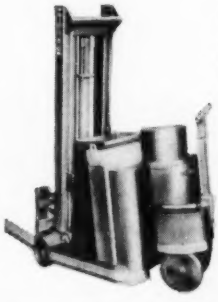


INDEX No. 53.22

Go-Getter (stand-on standard shown with overhead guard) high fork lift straddle model for narrow aisle tiering of pallets or skids. Also in walk-along and explosion proof series.

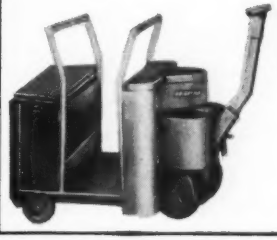
INDEX No. 55.23

Go-Getter (walk-along explosion proof) counterbalanced high lift fork model for tiering skids or pallets. Also ride-on and standard models.



INDEX No. 52.30

Go-Getter (Combination walk-along rider) towing tractor. Also in walk-along only and standard and explosion proof ride-on series.



REVOLVATOR CO.

ESTABLISHED 1904

Designers and Manufacturers of Portable Elevators, Power and Hand Lift Trucks, Hydraulic and Traction Elevators, Carboy and Barrel Dumpers, Portable Cranes, Positioners, Storage Racks, Turntables and Other Material Handling Equipment.

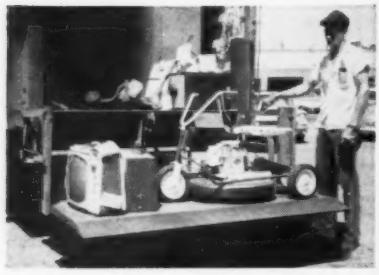
8739 Tonnele Avenue

NORTH BERGEN, NEW JERSEY

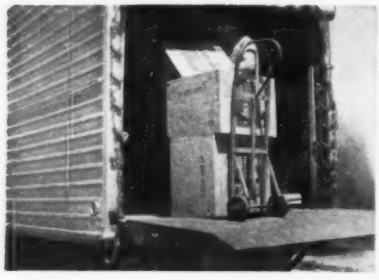
Sales Representatives in Leading Centers

Circle **103** on Reader Service Card

DAYBROOK
POWER GATE
owners report
33% to 100% more
stops a day



"DAYBROOK POWER GATES® are the only reason we stayed in business... began showing profit immediately after installing them ...now make *twice* as many deliveries with one less man per truck" – J. E. Ray Delivery Service, Dallas, Tex.



"Our POWER GATE-equipped trucks make at least 33% more pick-ups and deliveries...reduce damage claims and personnel injuries... practically no maintenance, either" – Tamiami Freightways, Tampa, Fla.

Figure what 33% to 100% more stops a day could mean to your delivery picture – lower equipment and labor investment – safer handling – higher net profit! POWER GATES easily fit any truck – 25 models from 800 to 5000 lbs. capacity.

FREE BOOKLET SHOWS YOU HOW TO CUT DELIVERY COSTS!

Call your Daybrook Distributor today for the factual savings guide, **"Proven Cost Savings in Handling"**, or write Dept. MH-10, Equipment Division, Young Spring & Wire Corporation, Bowling Green, Ohio.

EQUIPMENT DIVISION YOUNG SPRING & WIRE CORPORATION

BOWLING GREEN, OHIO ... Manufacturer of
DAYBROOK TRUCK EQUIPMENT
OTTAWA CONSTRUCTION EQUIPMENT
Circle **139** on Reader Service Card

ASSOCIATIONS

JOINT NATIONAL EMERGENCY HEADQUARTERS: The National Paperboard Association and Fibre Box Association have established a protective shelter which would be activated in event of nuclear attack. The shelter is located in the Virginia countryside about 45 miles west of Washington, D.C. Essential records, directories, and other information that would help maintain the work of the Associations and their respective industries are all stored. NPA's 92 members produce 90 percent of the total US output of paperboard. FBA's 110 members produce 80 percent of the nation's corrugated and solid fibre shipping containers. Albert W. Luhrs, executive manager of both Associations, established the site for operating the Associations in event of need. George Vander Hoef, Office of Industrial Mobilization, Business and Defense Services Administration, Washington, (left); Charles A. Lewis, Director, Containers and Packaging Division, BDSA (center) and Mr. Luhrs are shown conferring in the underground shelter.

VIM James Anwyll, Jr., industrial sales manager of the Marvellum Co., Holyoke, Mass., was recently elected president of the Volatile Inhibitor Manufacturers Association. E. L. Orchard of the Orchard Paper Co., St. Louis, was elected vice president.

CFTMA Annual meeting of the Caster and Floor Truck Manufacturers Association is Oct. 17-19 at Washington, D. C.

MHEDA Chairmen and committees for 1961-62 MHEDA activities are: Pres Wrenn, Industry Relations; Jack Patten, Membership; John Gagel, Local Group Activity; Chet Brumleve, Finance; Dick Stockwell, Convention; Mike Fanelli, Engineered Equipment; Howard Bernstein, Wholesale Listings; Bill Oliver, Rental Rate; Bob Arnold, Nominating; Harold Wiese, Catalog; Bill Oliver, Seminars; Clare Falkner, Insurance; and Walt Geisenhainer, Cost of Doing Business.

MHI The business-social-annual meeting of The Material Handling Institute is scheduled for Oct. 30-31 through Nov. 1 at Greenbrier, White Sulphur Springs, W. Va.

FPBA Shipments of folding cartons advanced strongly in July. The Folding Paper Box Association of America reports dollar volume of shipments up 3 percent over July, 1960. Tonnage was up 2.5 percent for the same period. Industry volume for July was estimated at $68.4 million. Tonnage of shipments during July was estimated at 168,400 tons, compared to 164,200 tons in July, 1960. Volume for seven months this year is now only 1.5 percent below 1960, while tonnage of shipments trails last year by 1.7 percent.

SPHE Baltimore Chapter will hold the 1961 SPHE National Packaging and Handling Competition Nov. 13 and 14. Top award merits the Harold Jackson Trophy. First, second, and third place awards are made in each of eight classifications. This is the 7th annual event.

A Package Engineering Seminar will be held in conjunction with the show. Four sessions are scheduled, with 100 registered to attend. The 12-hour course will cover: "Military Packaging of the Future"; "The Rapid Trend Toward Containerization"; "Package Cushioning as a Practical Science"; and "Rivalry in Plastic Foams as a Package Cushion." Speakers include Charles A. Lewis, Irwin Rehm, James S. Hardigg, Maurice Burnston, and Lt. Col. G. A. Davies.

FBA David R. Lepper, vice president and general manager of Stone Container Corp. has been reelected a director of the Fibre Box Association.

SMA Richard Y. Moss, vice president of Toledo Scale Corp., was elected president of the Scale Manufacturers Association at its annual meeting in Cleveland August 23. He succeeds C. G. Gehringer of The Howe Scale Co. Other officers include: Kenneth C. Allen, The Hobart Mfg. Co. (Dayton Scale) vice president; and Arthur Sanders, Washington, D.C. (Association headquarters) who was reelected secretary. Others elected to the board of directors are: B. Nevling Clune, Fairbanks, Morse & Co.; Carl E. Ehrenhardt, Winslow Government Standard Scale Works, Inc.; C. G. Gehringer, The Howe Scale Co.; Ingram H. Richardson, Richardson Scale Co.; and William A. Scheurer, The Exact Weight Scale Co.

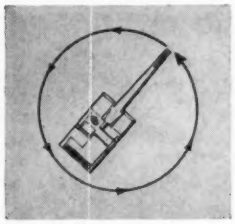
Scale volume in the first half of 1961 was almost 10 percent above the same period of 1960, a new record high for dollar volume. The Association reports a survey of business conditions that reflects ". . . decided optimism for better scale volume for the remainder of 1961 and on into 1962." The survey showed improved shipments of individual companies ranging up to 50 percent above 1960.

SILENT HOIST
KRANE KAR

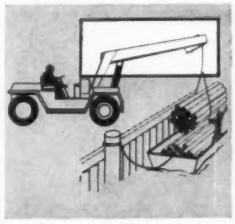
SAVES
$478.03 EVERY MONTH

says V. JAMES DeNAPLES
Technical Services Foreman
Norma-Hoffman Bearings Corp.

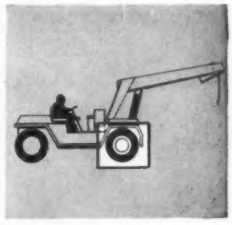
"This versatile yard crane simplifies our materials handling operations, cutting travel trips and saving us a considerable amount of work and time. Our KRANE KAR speeds unloading of incoming materials, transports and stacks them at storage . . ." RESULT: Monthly net savings—$478.03!



360° BOOM ROTATION—Hydraulic Crane revolves on heavy-duty, double-race ball-bearing turntable. Special manifold permits continual rotation and simultaneous, smooth, positive control of hoisting, topping, telescoping.



GREATER WORKING REACH—Boom is pivoted well forward to provide working reach of entire boom length! High boom underclearance permits efficient handling of bulky loads in box cars, trailers, etc.



MAXIMUM SAFETY—Dual traction tires means high flotation and maximum protection against tire blow-out upsets.
Bonus Capacity—Hydraulic outriggers step up working capacity to 24,000 lbs.

ALSO AVAILABLE:
KRANE KAR — 180° SWING BOOM — Mechanical Geared and All-Hydraulic Models. 5 Sizes: 1½, 2½, 5, 10, 12½ ton capacities.

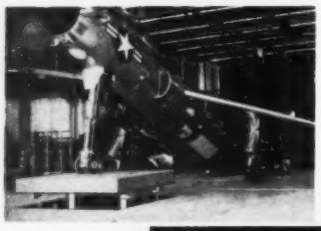
Literature Available:
On 360° Swing Boom—Bulletin No. 99 On 180° Swing Boom—Bulletin No. 79

SILENT HOIST & CRANE CO.
BROOKLYN 20, N. Y.

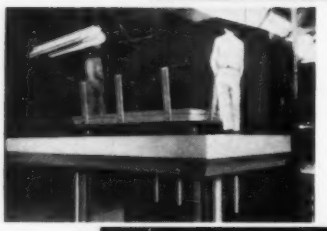
Circle 114 on Reader Service Card

Lift anything

WITH Rotary LEVELATOR LIFTS



PLANES



PLYWOOD

PAPER

PLANKS

CAPACITIES to 400,000 lbs. Dependable, economical hydraulic power. Standard models and specially engineered lifts for any industrial materials handling requirement. Mail coupon for information.

DOVER Dover Corp., Elevator Division
1060 Kentucky, Memphis 2, Tenn.

Please send information on Rotary Levelator Lifts to:

Name _____

Company _____

Address _____

_____

Circle 105 on Reader Service Card

mhe INDUSTRY NEWS

Towmotor Corp. Announces Top Executive Realignment

Major steps in the expansion of its top executive echelon are announced by Lester M. Sears, chairman and founder of the Company.

Smith

C. Edgar Smith, who has been president since 1951, assumes the post of chairman of the executive committee of the board of directors. This is a new position, parallel in responsibility to the positions of chairman and president.

Miller

Galen Miller, executive vice president since 1959, has been made president. Robert L. Fairbank, who has headed Towmotor's sales as vice president, becomes executive vice president.

Fairbank

Smith came with Towmotor in 1938. He rose rapidly, becoming sales manager in 1941, vice president in 1943, and executive vice president in 1947.

Miller joined the company in 1943 as secretary. He was made vice president and treasurer in 1951.

Fairbank started with Towmotor in 1951 as sales manager. He was made vice president in 1956. All three men are leaders in Cleveland civic activity.

Towmotor currently employs 1,500 in two factories and in 14 company-operated service centers. There are 200 representatives in the US and abroad.

In explaining the realignment, Mr. Sears stated that in the last five years, Towmotor's activity has "... increased immensely, requiring new duties and new men to perform them. We greatly increased our product line in 1956 with the acquisition of Gerlinger Carrier Co."

The line (15 basic designs of lift trucks and carriers ranging up to 60,000 lb. capacity) will be further expanded with the manufacture in this country of the electrically-powered lift trucks now made in England by Lansing Bagnall, Ltd. The company anticipates additional expansion of overseas business.

Directors of the company on Aug. 16 declared a dividend of $.35 a share, payable Oct. 2. The same amount was paid in the first two quarters of 1961, as it has been each quarter for the last several years.

Little Giant Co. Appointments

James D. Smiley has been named sales engineer in the Sales Department of the Material Handling Division of Little Giant Products, Inc., Peoria, Ill. Harry J. Alcorn is now assistant chief engineer in the Engineering Department.

Heads Brooks & Perkins

The board of directors of Brooks & Perkins, Inc., Detroit, has elected Edward H. Perkins, Jr., president. He had been executive vice president and general manager.

Perkins

In other company appointments, Douglas S. Ferguson, formerly sales manager of the Mill and Industrial Products Division, has been named general sales manager. Donald L. Erickson has been promoted from production manager to plant manager.

Weyrauch Named General Manager

Herbert E. Weyrauch has been named general manager of the Electronic Controls Division of Flo-Tronics, Inc. He also retains his former sales manager position in this division.

Weyrauch

Weyrauch's work with transistorized and mechanical controls dates back to positions with Maico Electronics, Inc. and Dahlberg, Inc. He is a graduate of the United States Naval Academy.

Richards Elected Clark Equipment Co. Secretary

Samuel D. Richards has been elected secretary of Clark Equipment Co. He succeeds J. F. Bechtel who has been appointed general manager of Clark Equipment International, C.A.

Richards

Richards joined Clark in 1955 after many years as assistant treasurer for Studebaker Corp., South Bend. He has an AB degree from Harvard University.

Clark Named Merchandise Manager at Jervis B. Webb

David C. Clark has been appointed manager of the Merchandise Sales Division of the Jervis B. Webb Co., Detroit conveyor manufacturer.

Clark

Clark formerly was sales manager of the Webb Forging Co. In addition to his sales duties, Clark is treasurer and a director of the Webb Co.

Continued on page 118

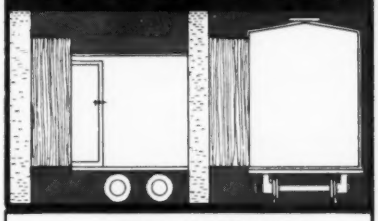
Circle 130 on Reader Service Card

FROMMELT

Automatic

TRUCK AND RAIL DOCK SHELTERS

YEAR 'ROUND PROTECTION THAT PAYS FOR ITSELF IN SAVINGS



OFFER EXCLUSIVE

√Automatic Weatherseal
√One Man Operation
√Factory Assembled

CALL — WRITE—WIRE

FROMMELT INDUSTRIES, INC.

Dubuque, Iowa

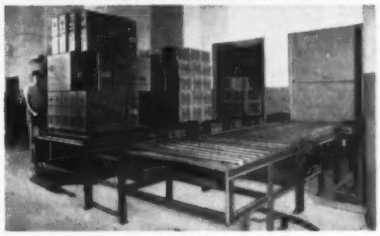
Circle 44 on Reader Service Card

Waiting for Elevators Is Boosting Your Handling Costs! SAVE it with

Weld-Bilt

Between-Floor Automatic

VERTICAL CONVEYORS



You'll *double* your handling speed with Weld-Bilt Automatic Floor-to-Floor Reciprocating Vertical Conveyors . . . Avoid idle truckers, lost labor, equipment and production tie-up! Load manually or by conveyor. Switches, controls, brakes, platforms . . . all engineered to your needs. Minimum remodeling.

Write for Vertical Transportation Bulletin E-577 and save!

WEST BEND EQUIPMENT CORP.

MATERIALS HANDLING ENGINEERS

335 WATER STREET • WEST BEND, WIS.

magcoa

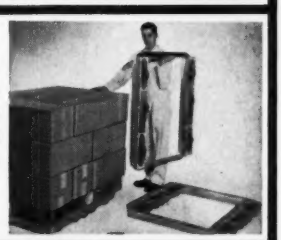
THE OLDEST TRADENAME IN LIGHT METALS MATERIALS HANDLING PRODUCTS

MAGNESIUM DOCKBOARDS

For safe, skid-proof truck and rail loading! Rugged but lightweight — one man can position. Engineered to fit your dock and equipment. Most modern economical dockboards available.

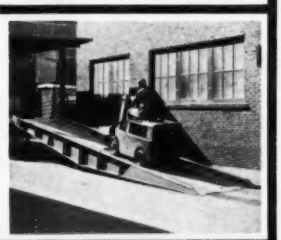
PALLET DOLLIES

Free your lift trucks — end loading bottlenecks! Magnesium — light and durable — at no premium. Magcoa rollers give total maneuverability. 18 standard sizes — capacities to 4000 lbs.



PORTABLE YARD RAMPS

Solve your ground level loading problems! 32 std. mobile models — capacities to 100,000 lbs. Engineered to accommodate all equipment, load and height requirements.



Write today!

MAGNESIUM COMPANY OF AMERICA

155 S. E. 10th Ave. TUxedo 7-8117 Hialeah, Florida

Circle 81 on Reader Service Card

You can even read this scale around corners—up to 100 ft. away!

only Martin-Decker has this Eye-Level Remote Indicating Crane Scale!

Minimum headroom requirement gives you more stacking space • Full 360° dial makes indicator easier to read, more accurate • Exclusive sensater-type load cell eliminates surface friction • Full tare adjustment to manually zero out boxes, baskets, hooks, etc. • High safety factor — ultimate strength more than 5 times rated capacity. Dial crystal is shatter resistant optic plastic • All scales available in metric calibrations.

36 Models with capacities from 500 lbs. to 60,000 lbs.

Write for Technical Brochure T-1610

The standard Martin-Decker Sensater Crane Scale has all of the precision features of the remote model.

MARTIN DECKER

Precision Pressure Instruments Testing—Weighing—Load and Force Measurement

MARTIN-DECKER CORPORATION • 3431 Cherry Ave., Long Beach 7, Calif.

Circle 91 on Reader Service Card

"HI-CLIMBER"®

For a Steady, Up-Hill Flow of Packaged Goods...

Heavy-duty belting for incline conveyors handling cartons, boxes, baskets, bags, cans, etc. Special diamond-impression surface will keep packages in place on grades up to 40°—no slipping, sliding or jamming to halt continuous transfer. Widths up to 44".

"SKY-KLEET"®

For Efficient Movement of Small Items

Specially designed rubber cleats available on Goodall Conveyor Belting used for handling food products, small packages and parts, stampings, minerals, chemicals, etc., on fixed or portable conveyors. Cleats are molded into the belt—never come loose. Spaced 12" apart unless otherwise specified.

"If it's GOODALL, it MUST be Good!"

Contact Our Nearest Branch for Details and Prices

Manufacturers of Mechanical Rubber Products—Since 1870

Standard of Quality HOSE · BELTING · FOOTWEAR CLOTHING · EXPANSION JOINTS · PACKINGS · LINERS, ETC.

GOODALL *Rubber Company*

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches and Distributors Throughout the United States and in Canada

Circle **47** on Reader Service Card

INDUSTRY NEWS

Philip S. Hill Named Hyster Company President

Philip S. Hill has been appointed president of Hyster Company, succeeding Ernest G. Swigert. Swigert was appointed chairman of the board of directors and chief executive officer of the company.

Hill

The board of directors at the same time named Harvey N. Black as senior vice president. Black will also continue as secretary and treasurer.

Swigert

Hill, who has been with the company 28 years, had been executive vice president since 1956. He is well-known in the heavy machinery and material handling industries. He currently is serving his second term as president of the Industrial Truck Association.

Black

Swigert was president of Hyster since the firm was founded in 1929. Black has been secretary and treasurer also since the company was incorporated.

Crosby-Laughlin Division Names New Sales Head

John W. West has been appointed general sales manager of the Crosby-Laughlin Division of American Hoist, Fort Wayne, Ind.

West

West replaces Percy Gough who recently was promoted to director of marketing of American Hoist.

West joined Crosby-Laughlin in 1955 as a district manager. He was made assistant sales manager in 1960.

Jensen Named Manufacturing Manager at Ward Hydronics

Einar P. Jensen has been promoted to manager of manufacturing at Ward Hydronics, Inc., Alden, N.Y.

Jensen, who has been with the company four years, was formerly

sales engineer. He previously worked as a methods engineer with Chisholm Ryder Co.

Ward Hydronics, a subsidiary of Scott Aviation Corp., makes hydraulic cylinders for heavy construction and material handling equipment.

Form Industrial Traffic Division

William M. Kordsiemon and Associates, Management Consultants, Chicago, have formed an Industrial Traffic Division. The division will provide complete traffic consulting services for industry.

Services include: general traffic surveys, transportation surveys, transportation equipment requirements, routing systems, claim auditing, freight bill auditing, service studies, and receiving and shipping room layouts and material handling.

Schield Bantam Appoints Domestic Sales Manager

Vernon E. Pray has been appointed domestic sales manager for the Schield Bantam Co., Waverly, Ia. The appointment is an effort to strengthen the company's marketing services to all its distributors.

Pray

Pray joined the company in 1949. He previously headed the sales promotion department for R. G. LeTourneau, Inc. Pray was Schield Bantam's first advertising manager. Two years later he became sales development manager, his most recent position.

Distributor News and Company Reps

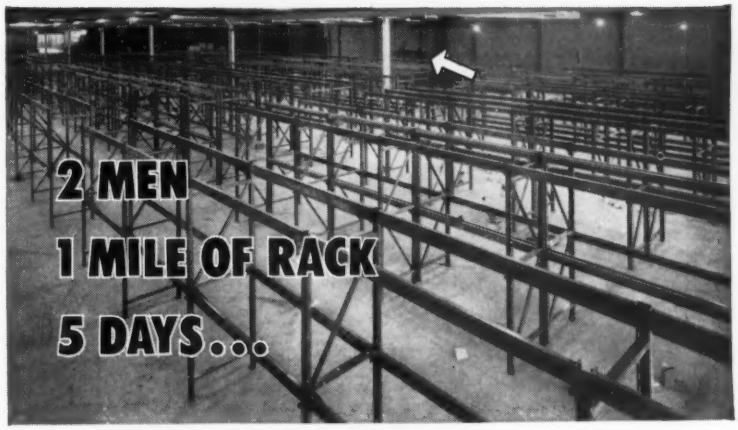
Clark Equipment Co.'s Industrial Truck Division has three district sales managers. **Carl Monroe** has the southwest territory; **Ivan Hawk**, the southeast; and **Harry Otis**, the northwest.

American Pulley Co. has appointed the **Holub Iron and Steel Co.** a franchised distributor. Holub recently started a Material Handling Division.

Silent Hoist & Crane Co. has added two distributorships: **Baker Industrial Trucks**, Decatur, Ga., and **A. J. Gates Co., Inc.**, Cleveland.

Allis-Chalmers has appointed **Cherokee Warehouses, Inc.**, Chattanooga, Tenn. dealer for various counties in Alabama, Georgia, Kentucky, and Tennessee.

How's this for fast assembly?



...and for adjustability?

...it's done with **Sturdi-Bilt**

"Float Wedge Construction"

1. Simply insert Sturdi-Bilt Wedge Lock...
2. . . . into the slots in the factory prefabricated upright frame . . .
3. and lock to the horizontal safety support bars.
NO NUTS, BOLTS, TOOLS, WELDING OR SPECIAL LABOR

RACKS FOR EVERY STORAGE NEED

Send for NEW catalog.

Sturdi-Bilt

U.S. Patent Nos. 2760650, 2815130

Attach this coupon to your letterhead or write:
STURDI-BILT
Material Handling Division
Union Asbestos and Rubber Company
332 S. Michigan Ave., Chicago 4, Illinois
Dept. MHE-10

Circle **117** on Reader Service Card

DUO-FAST pneumatic staple nailing cuts crating labor costs 40%

Conclusive proof that DUO-FAST heavy-duty staples outhold equivalent size nails can be seen every day in the shipping department of a Cleveland manufacturer. This company produces portable welders, generators and other heavy equipment. The crates must be sturdy and securely fastened together.

The powerful DUO-FAST Staple Nailers, which replaced manual nailing, drive tight-holding DUO-FAST Staples to give this company a stronger crate . . . plus a 40% saving in the labor required to build it.

Find out today how DUO-FAST can save you time on crating, expendable skids and other industrial packaging problems. Ask for Bulletin FT-17.

FASTENER CORPORATION, 3700-A River Road, Franklin Park, Illinois

1400

DUO-FAST Staplers Tackers Staples

Everything you need for tacking, stapling and nailing.

Circle 39 on Reader Service Card

INDUSTRY NEWS

Three Point Belt Lacing, Inc. has appointed **Flexible Steel Lacing Co.**, Chicago, sales agent for its line of belt repair fasteners.

Lee C. Barr has been appointed sales representative for **Faultless Caster Corp.'s** newly established area office at Memphis, Tenn. The new office will serve manufacturers and distributors in southern Alabama, Arkansas, Louisiana, Mississippi, western Tennessee, and northern Florida.

Kenneth E. Quick has been appointed sales representative for **The Day Sales Co.**, Minneapolis. His territory includes metropolitan San Francisco and the northern California area.

Richard G. Buchignani has been appointed southern regional representative for **Hyster Co.'s Industrial Truck Division.** His territory takes in 11 states.

Elmo Hindman has been appointed a territory manager for **A. J. Gerrard & Co.** He will work in Tennessee, Arkansas, Mississippi, and Missouri.

May-Fran Mfg. Co. has appointed **William A. Bauers** as eastern coast sales manager and engineer.

Alvey Conveyor Mfg. Co. has appointed the **Chaitin Equipment Co.**, San Francisco, a representative. Territory takes in northern California.

Clark Equipment Co. has appointed two distributors for its Michigan line of construction and heavy bulk material handling equipment. They are: the **Western States Machinery Co.**, Denver and **Rowand Machinery Co.**, Spokane, Wash.

CLASSIFIED ADVERTISING

Rates: Cost of all ads in this section is $20 for the first inch and $15 for each additional inch or fraction. Rates for display ads in this section will be sent on request. All classified advertising is payable in advance.

DISTRIBUTOR OPPORTUNITY

Several areas available for qualified distributors to handle a broad line of package and bulk handling conveyors, live storage racks and engi-

neered systems. Send details of present lines and area covered. Write Box 10161, MATERIAL HANDLING ENGINEERING, 812 Huron Road, Cleveland 15, Ohio.

FOR SALE

TWO MOTO-TRUC ELECTRIC FORK-LIFT TRUCKS AND STACKERS. REASONABLY PRICED. 3,000 lb. capacity, 127 inch lifting height, 42 inch forks and 42 inch outrigger. Stand-up rider type with safety guards. Will operate in 6-foot aisle. Batteries and charger optional. One 2½ years old, one 3 years old. Contact Mr. A. B. DeWilde at Kitchens of Sara Lee, 5353 Elston Avenue, Chicago 30, Illinois. Telephone: AVenue 2-3200.

***USED* LIFT TRUCKS**

Our National Dealer Network Offers a Complete Selection HYSTER and Other Makes

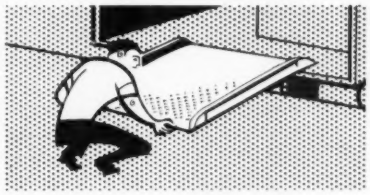
Many with Attachments and Devices
AS IS—RECONDITIONED—REBUILT

All Types of Finance and Lease Plans — Write — Wire — Phone Used Truck Office Dept. MHE

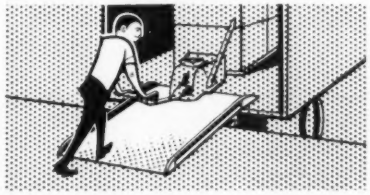
HYSTER COMPANY
1040 S. 25th Ave., Bellwood, Ill.
ESterbrook 9-3515

Circle 142 on Reader Service Card

One man can handle this magnesium ramp



Speed up your truck loading



Penco

Strong • Safety side rails • Ramp stop design • Sizes 1000 to 10,000 lb. cap.
COAST TO COAST DISTRIBUTORS
EAST COAST SHIPPING POINT
MFR'S OF MAGNESIUM CAR LOADING & YARD RAMPS; STEEL CAR & TRUCK RAMPS; PALLET ROLLERS
Penco Engineering Co.
701 Welch Road · Palo Alto, California
Plant: Kenilworth, New Jersey

Circle 129 on Reader Service Card

Safe* DRUM *Handling

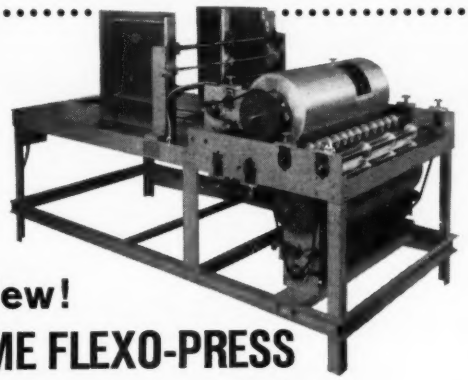
DRUM CARRIER

- Alignment compensator automatically places drums into gripping position.
- Carrier loads over drums.
- Gravity action causes gripping shoes to securely hold load.
- Release can only be effected by application of hydraulic pressure.
- Standard models handle standard 55-gallon drums in diameters from 22¼" to 24¾", and permit 6" variation in height in same load.
- Special types available for Monorail, Crane, and other applications.

TRAY-HART CYLINDER CARRIERS

- All sizes and types of cylinders handled with ease.
- Quantity according to lift truck capacity.
- Write for complete information

Manufactured by
WALZ & KRENZER, Inc.
22 Flint Street, Rochester 8, N. Y.



New!
IME FLEXO-PRESS
imprints knockdown cartons, multi-wall bags

★ Up to 3600 an hour ★ Can also be used for continuous imprinting of web or sheet-fed material ★ Handles any size
★ Imprints top, bottom, sides in one pass
★ Quality impression every time

New IME Flexopresses code, date, trade-mark and price in one step . . . handle knockdown cartons and multi-wall bags of any size . . . mark as many as 3600 an hour.

You get a sharp, instant-drying impression on burlap, foil, kraft, virtually every material. And thanks to an IME-developed inking system, you simply pour ink into open fountain to refill. No machine shut-downs, no messy clean-up.

Whatever your marking needs, IME either has, or can help you develop a machine to handle them. Write Industrial Marking Equipment Company, Inc., Dept. MHE

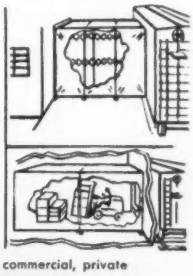
ime company, inc.
INDUSTRIAL MARKING EQUIPMENT
655 BERRIMAN ST. | BROOKLYN 8, N.Y. | NI 9-3305

Circle 59 on Reader Service Card

PROTECT MERCHANDISE
FROM THE WEATHER

KEEP OUT RAIN - SNOW - COLD

- Made of heavy flame and water-resistant canvas or rubberized nylon.
- Sturdy frames and hardware.
- Scissor arms permit folding.
- Tailored to your loading dock.



Mamaux Folding, Loading Dock Covers save you many times the cost in preventing merchandise damage in rainy, cold or hot weather.

Folding Canvas or Asbestos Welding Screens. Stock sizes and specials.

Tarpaulins . . . 100,000 Sq. Ft. in Stock

Write us for all your needs . . . industrial, commercial, private

A. MAMAUX & SON
120 BOULEVARD OF THE ALLIES
PITTSBURGH 22, PA. PHONE COURT 1-3500

• *DEALER TERRITORIES OPEN* •

Circle 82 on Reader Service Card

Circle 96 on Reader Service Card

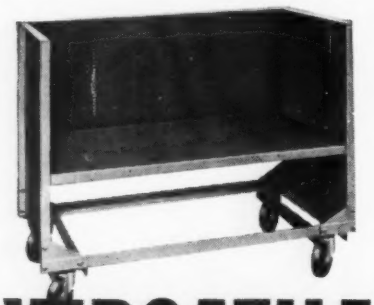
Don't give up

if your conveyor system is out of date or not saving money as it should. Modernize with Maitrol®. This versatile magnetic control system can rejuvenate the economics of your conveyor, large or small, and pay for itself at the same time.

- No wires between stations
- Destination or processing coding can ride with material even through interconveyor transfers
- Unlimited encoding combinations
- No rubbing or sliding parts to wear out
- Low cost, high reliability
- Simple pushbutton or dial control

Write today for Maitrol brochure. It gives full details.

Maico *electronics inc.*
A SUBSIDIARY OF W. A. SHEAFFER PEN CO.
21 N. Third St. • Minneapolis 1, Minn.



VERSATILE

ALL-PURPOSE TRUCKS

by FIRST WILDER IN QUALITY

27 standard style and 150 standard size platform, shelf, tray, rack, stake, bin, box and table trucks to select from. Special sizes can be furnished.

Write for Complete Information on Wilder's Full Line of Production Handling Equipment

WILDER MFG. CO., INC.
PORT JERVIS, NEW YORK

Circle 132 on Reader Service Card

mhe ADVERTISERS INDEX

Acme Chain Corp. 21
Acme Steel Co. ..... 44 & 45
Aircraft Armaments, Inc. 91
Albion Industries, Inc. 50
Allis-Chalmers ..... 8 & 9
Alvey Conveyor Mfg. Co. 69
American Metal Products Co. 12
Automatic Transportation Co. 33

Ballymore Co. 105
Barrett-Cravens Co. 23
Bassick Co. 107
Behlen Mfg. Co. 94
Bostitch, Inc. 70
Brooks & Perkins, Inc. 90
E. W. Buschman Co. 96

Cascade Mfg. Co. 97
Caterpillar Tractor Co. 16
Clark Equipment Co.
Industrial Truck Div. ..... 18 & 19
Clarke Floor Machine Co. 112
Cleveland Container Co. 34
Columbus McKinnon Corp.
Conveyor Div. 105
Conco Engineering Works 22
Convoy, Inc. 74
Corlett-Turner Co. 100
Cullen-Friestedt Co. 110
Cyclone Fence Dept.,
American Steel & Wire Div.,
United States Steel 17

D & M Truck Top Co. 68
Darnell Corp. 47
Day Co. 32
Dazzo Products Co. 103
Douglas Fir Plywood Association ..... 24 & 25
Dow Corning Corp. 94
E. I. du Pont de Nemours & Co., Inc. 99

Econo Mfg. Co. 110
Electric Storage Battery Co.
Exide Industrial Div. 95
Elwell-Parker Electric Co. ..... 36 & 37
Equipment Mfg., Inc. 27
Euclid Crane & Hoist Co. 74
Fastener Corp. 120
Faultless Caster Corp. ..... inside front cover
Federal Fibre Corp. 101
Finco, Inc. 102
Frommelt Industries, Inc. 117

A. J. Gerrard & Co. 51
Globe Hoist Co. 46
Goodall Rubber Co. 118
B. F. Goodrich Co. ..... 48 & 49
Goodyear Tire & Rubber Co. 1

Hanchett Magna-Lock Corp. 106
Hartman Metal Fabricators, Inc. 96
Heil Co. 75
Frank G. Hough Co. 65
Hyster Co. 5

Impact-O-Graph Corp. 103
Industrial Marking Equipment Co. 121
Island Equipment Corp. 98

Joyce-Cridland Co. 104

Kappen Sales Co. 43
Kelley Co. 50

Laher Spring & Electric Car Corp. 39
F. H. Langsenkamp Co. 101
Lift Trucks, Inc. 92
Little Giant Products, Inc. ..... 46 & 47
Loomis Machine Co. 98
Louden Machinery Co. 35

Magline, Inc. ..... inside back cover
Magnesium Co. of America 117
Maico Electronics, Inc. 122
A. Mamaux & Son 121
Manning, Maxwell & Moore, Inc. 87
Martin-Decker Corp. 117
Marvel Industries, Inc. 30
Mathews Conveyor Co. 109
Monarch Rubber Co. 13
Motec Industries, Inc. 82
Moto-Truck Co. ..... 88 & 89
Multistamp Co. 111

National LP-Gas Council 10
Nolan Co. 104
Nutting Truck & Caster Co. 4

Samuel Olson Mfg. Co. 100
Oxy-Catalyst, Inc. 100

Pacific Coast Engineering Co. 52
Penco Engineering Co. 121
Pryor Marking Products 102

Raymond Corp. ..... 28 & 29
Redmanson Corp. 104
Revolvator Co. 113
Richards-Wilcox Mfg. Co. 31
Robbins & Myers 7
John A. Roebling's Sons Div.
The Colorado Fuel & Iron Co. 76
Rotary Lift Co. 116
Roura Iron Works, Inc. 30

St. Regis Paper Co. 42
Shepard Niles Crane & Hoist Corp. 108
Signode Steel Strapping Co. ..... 68, 78 & 79
Silent Hoist & Crane Co. 115
Fred Silver Co. 110
Spotnails, Inc. 26
Standard Conveyor Co. 77
Sturdi-Bilt Material Handling Div.,
Union Asbestos and Rubber Co. 119

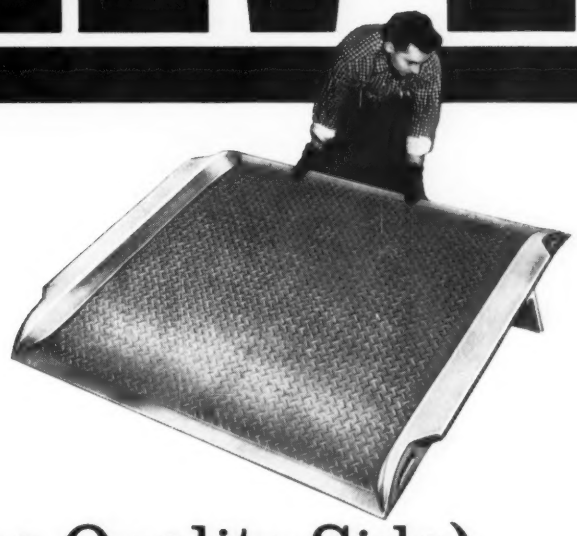
Towmotor Corp. 11

Union Steel Products Co. 2
U.S. Rubber Co. 93
U.S. Steel Supply Div.,
United States Steel 83

Walz & Krenzer, Inc. 121
Ward Hydronics, Inc. 41
West Bend Equipment Corp. 117
Whiting Corp. 38
Wilder Mfg. Co. 122
Worley Equipment, Inc. 103

Young Spring & Wire Corp. 114

HEAVY



(Only on the Quality Side)

. . . that's why experienced buyers single out Magline as the *safe source* for magnesium dock boards. They've discovered there *is* a big difference in dock boards. Other boards might offer some of the rugged, long life construction features that Magline has developed over the years . . . but only Magliners provide *all* of them. Magline builds better dock boards, *more of them, too.* That's why you see so many around. Don't settle for less. *Write for "Guidelines For Selecting A Quality Dock Board," Magline Inc., P. O. Box 110, Pinconning, Michigan.*

MAGLINER DOCK BOARDS

MADE OF MAGNESIUM FOR EASY ONE-MAN HANDLING

Circle **79** on Reader Service Card

Bob Gauvin makes sure that you get what you want . . . fast!

Looking after the wants of over 45,000 readers of MATERIAL HANDLING ENGINEERING: that's Bob Gauvin's job. As manager of our Reader Service Department, the most modern and efficient in the business press, Bob makes sure your inquiries are processed accurately and promptly. An expertly-trained staff, plus the latest, automatic, high-speed punched card equipment make this possible.

Every issue of MATERIAL HANDLING ENGINEERING offers a gold mine of material handling industry information. Product facts, catalogs, data books, manuals: the latest facts for your files are yours for the asking. The easy way to ask is to use one of the postage-paid Reader Service Cards bound into this issue.

Franchise Circulation gets magazines to the men who buy

Distilled Writing gets magazines read

Material Handling Engineering

AN INDUSTRIAL PUBLISHING CORPORATION MAGAZINE

812 HURON ROAD • CLEVELAND 15, OHIO • SUPERIOR 1-9620 • OFFICES NEW YORK • CHICAGO • LOS ANGELES • LONDON